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10/19/22

REZONING APPLICATION

AN APPLICATION TO AMEND THE OFFICIAL ZONING MAP OF GWINNETT COUNTY, GA.

APPLICANT INFORMATION	PROPERTY OWNER INFORMATION*
NAME: <u>12Stone Church, Inc. c/o Mahaffey Pickens Tucker, LLP</u>	NAME: <u>12Stone Church, Inc.</u>
ADDRESS: <u>1550 North Brown Road, Suite 125</u>	ADDRESS: <u>1322 Buford Drive</u>
CITY: <u>Lawrenceville</u>	CITY: <u>Lawrenceville</u>
STATE: <u>Georgia</u> ZIP: <u>30043</u>	STATE: <u>Georgia</u> ZIP: <u>30043</u>
PHONE: <u>770 232 0000</u>	PHONE: <u>770 232 0000</u>
CONTACT PERSON: <u>Shane Lanham</u> PHONE: <u>770 232 0000</u>	
CONTACT'S E-MAIL: <u>slanham@mptlawfirm.com</u>	

APPLICANT IS THE:

OWNER'S AGENT
 PROPERTY OWNER
 CONTRACT PURCHASER

R-100 &

PRESENT ZONING DISTRICTS(S): RA-200 REQUESTED ZONING DISTRICT: MU-C

PARCEL NUMBER(S): R7051 003 ACREAGE: +/- 69.09

ADDRESS OF PROPERTY: 1322 Buford Drive

PROPOSED DEVELOPMENT: Mixed-Use campus with church, multifamily residential, townhouses green space, and office/retail

RESIDENTIAL DEVELOPMENT	NON-RESIDENTIAL DEVELOPMENT
No. of Lots/Dwelling Units <u>341</u>	No. of Buildings/Lots: <u>1/1</u>
Dwelling Unit Size (Sq. Ft.): <u>varies per UDO</u>	Total Building Sq. Ft. <u>8,750</u>
Gross Density: <u>+/- 4.84 units per acre</u>	Density: <u>+/- 126.65 square feet per acre</u>
Net Density: <u>+/- 5.37 units per acre</u>	

PLEASE ATTACH A LETTER OF INTENT EXPLAINING WHAT IS PROPOSED

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LEGAL DESCRIPTION - OVERALL TRACT

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOT 51 OF THE 7TH DISTRICT, GWINNETT COUNTY, GEORGIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE POINT LOCATED 587.44 FEET, MORE OR LESS, AT THE INTERSECTION OF CENTERLINE OF THE YELLOW RIVER AND THE WEST RIGHT OF WAY LINE OF GEORGIA HIGHWAY 20 (A.K.A. BUFORD-LAWRENCEVILLE HIGHWAY) (A.K.A. BUFORD DRIVE) (VARIABLE PUBLIC RIGHT OF WAY), MEASURED ALONG SAID WEST RIGHT OF WAY OF GEORGIA HIGHWAY 20 FROM THE POINT LOCATED AT THE INTERSECTION OF SAID WEST RIGHT OF WAY OF GEORGIA HIGHWAY 20 AND THE SOUTHERLY RIGHT OF WAY OF CALVIN DAVIS CIRCLE (60 FOOT RIGHT OF WAY), SAID POINT BEING THE TRUE POINT OF BEGINNING;

THENCE ALONG SAID WEST RIGHT OF WAY OF GEORGIA HIGHWAY 20 THE FOLLOWING COURSES AND DISTANCES: SOUTH 75 DEGREES 38 MINUTES 42 SECONDS EAST A DISTANCE OF 56.68 FEET TO A SET 1/2 INCH REBAR WITH CAP; SOUTH 14 DEGREES 28 MINUTES 47 SECONDS WEST A DISTANCE OF 306.97 FEET TO A POINT; SOUTH 16 DEGREES 06 MINUTES 08 SECONDS WEST A DISTANCE OF 170.74 FEET TO A POINT; SOUTH 17 DEGREES 41 MINUTES 20 SECONDS WEST A DISTANCE OF 576.04 FEET TO A SET 1/2 INCH REBAR WITH CAP; SOUTH 06 DEGREES 06 MINUTES 05 SECONDS EAST A DISTANCE OF 426.96 FEET TO A POINT; THENCE LEAVING SAID WEST RIGHT OF WAY AND PROCEED SOUTH 71 DEGREES 03 MINUTES 35 SECONDS WEST A DISTANCE OF 194.35 FEET TO A FOUND 2 INCH OPEN TOP PIPE; THENCE SOUTH 03 DEGREES 56 MINUTES 25 SECONDS WEST A DISTANCE OF 220.09 FEET TO A FOUND 1/2 INCH REBAR; THENCE SOUTH 80 DEGREES 16 MINUTES 00 SECONDS WEST A DISTANCE OF 1258.34 FEET TO A FOUND 1/2 INCH REBAR LOCATED ON THE COMMON LAND LOT LINE BETWEEN LAND LOTS 50 AND 51; THENCE NORTH 29 DEGREES 52 MINUTES 06 SECONDS WEST A DISTANCE OF 271.86 FEET TO A FOUND 1/2 INCH REBAR (INSIDE 1 INCH OPEN TOP PIPE); THENCE NORTH 29 DEGREES 42 MINUTES 46 SECONDS WEST A DISTANCE OF 653.20 FEET TO A FOUND 1/2 INCH REBAR; THENCE NORTH 32 DEGREES 43 MINUTES 28 SECONDS WEST A DISTANCE OF 372.18 FEET TO A POINT LOCATED AT THE CENTERLINE OF YELLOW RIVER; THENCE ALONG SAID CENTERLINE OF YELLOW RIVER, LOCATION BASED ON DEED BOOK 19299 PAGE 141, THE FOLLOWING COURSES AND DISTANCES: NORTH 17 DEGREES 15 MINUTES 48 SECONDS EAST A DISTANCE OF 27.64 FEET TO A POINT; NORTH 20 DEGREES 44 MINUTES 21 SECONDS EAST A DISTANCE OF 111.22 FEET TO A POINT; NORTH 47 DEGREES 59 MINUTES 13 SECONDS EAST A DISTANCE OF 53.50 FEET TO A POINT; NORTH 22 DEGREES 18 MINUTES 33 SECONDS EAST A DISTANCE OF 28.31 FEET TO A POINT; NORTH 39 DEGREES 31 MINUTES 43 SECONDS EAST A DISTANCE OF 34.70 FEET TO A POINT; SOUTH 86 DEGREES 30 MINUTES 56 SECONDS EAST A DISTANCE OF 36.27 FEET TO A POINT; NORTH 43 DEGREES 03 MINUTES 21 SECONDS EAST A DISTANCE OF 286.36 FEET TO A POINT; NORTH 64 DEGREES 45 MINUTES 22 SECONDS EAST A DISTANCE OF 52.79 FEET TO A POINT; NORTH 13 DEGREES 24 MINUTES 46 SECONDS EAST A DISTANCE OF 33.11 FEET TO A POINT; NORTH 43 DEGREES 58 MINUTES 04 SECONDS EAST A DISTANCE OF 39.34 FEET TO A POINT; NORTH 87 DEGREES 03 MINUTES 57 SECONDS EAST A DISTANCE OF 58.21 FEET TO A POINT; NORTH 17 DEGREES 37 MINUTES 23 SECONDS EAST A DISTANCE OF 58.24 FEET TO A POINT; SOUTH 58 DEGREES 52 MINUTES 29 SECONDS EAST A DISTANCE OF 48.37 FEET TO A POINT; SOUTH 87 DEGREES 55 MINUTES 27 SECONDS EAST A DISTANCE OF 24.77 FEET TO A POINT; NORTH 64 DEGREES 18 MINUTES 43 SECONDS EAST A DISTANCE OF 61.58 FEET TO A POINT; NORTH 28 DEGREES 23 MINUTES 05 SECONDS EAST A DISTANCE OF 91.09 FEET TO A POINT; NORTH 83 DEGREES 16 MINUTES 10 SECONDS EAST A DISTANCE OF 46.52 FEET TO A POINT; NORTH 54 DEGREES 29 MINUTES 22 SECONDS EAST A DISTANCE OF 30.48 FEET TO A POINT; NORTH 01 DEGREES 33 MINUTES 55 SECONDS WEST A DISTANCE OF 32.04 FEET TO A POINT; NORTH 15 DEGREES 41 MINUTES 00 SECONDS EAST A DISTANCE OF 27.90 FEET TO A POINT; NORTH 63 DEGREES 59 MINUTES 46 SECONDS EAST A DISTANCE OF 141.36 FEET TO A POINT; NORTH 55 DEGREES 01 MINUTES 21 SECONDS EAST A DISTANCE OF 137.81 FEET TO A POINT; NORTH 24 DEGREES 02 MINUTES 18 SECONDS EAST A DISTANCE OF 96.55 FEET TO A POINT; NORTH 52 DEGREES 53 MINUTES 33 SECONDS EAST A DISTANCE OF 36.49 FEET TO A POINT; NORTH 51 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 86.81 FEET TO A POINT; NORTH 51 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 99.62 FEET TO A POINT; NORTH 45 DEGREES 20 MINUTES 05 SECONDS EAST A DISTANCE OF 104.49 FEET TO A POINT; NORTH 67 DEGREES 03 MINUTES 10 SECONDS EAST A DISTANCE OF 111.28 FEET TO A POINT; NORTH 46 DEGREES 44 MINUTES 41 SECONDS EAST A DISTANCE OF 108.81 FEET TO A POINT; NORTH 70 DEGREES 09 MINUTES 01 SECONDS EAST A DISTANCE OF 63.61 FEET TO A POINT; NORTH 89 DEGREES 03 MINUTES 42 SECONDS EAST A DISTANCE OF 107.12 FEET TO A POINT; NORTH 72 DEGREES 05 MINUTES 04 SECONDS EAST A DISTANCE OF 79.72 FEET TO A POINT; SOUTH 66 DEGREES 18 MINUTES 46 SECONDS EAST A DISTANCE OF 33.45 FEET TO A POINT; SOUTH 80 DEGREES 05 MINUTES 52 SECONDS EAST A DISTANCE OF 118.65 FEET TO A POINT; SOUTH 33 DEGREES 49 MINUTES 07 SECONDS EAST A DISTANCE OF 37.03 FEET TO A POINT; SOUTH 41 DEGREES 20 MINUTES 56 SECONDS EAST A DISTANCE OF 59.06 FEET TO A POINT; SOUTH 63 DEGREES 26 MINUTES 15 SECONDS EAST A DISTANCE OF 80.74 FEET TO A POINT; NORTH 70 DEGREES 28 MINUTES 45 SECONDS EAST A DISTANCE OF 43.58 FEET TO A POINT; NORTH 59 DEGREES 59 MINUTES 23 SECONDS EAST A DISTANCE OF 33.95 FEET TO A POINT; NORTH 68 DEGREES 28 MINUTES 18 SECONDS EAST A DISTANCE OF 118.78 FEET TO A POINT, SAID POINT BEING THE TRUE POINT OF BEGINNING.

TRACT CONTAINS 3,009,603 SQUARE FEET OR 69.091 ACRES, MORE OR LESS.

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11/1/22



Matthew P. Benson
Catherine W. Davidson
Gerald Davidson, Jr.*
Rebecca B. Gober
Brian T. Easley
Christopher D. Holbrook

Shane M. Lanham
Jeffrey R. Mahaffey
Jessica R. Pickens
Steven A. Pickens
Andrew D. Stancil
R. Lee Tucker, Jr.

*Of Counsel

**COMBINED LETTER OF INTENT FOR REZONING APPLICATION OF
12STONE CHURCH, INC.**

Mahaffey Pickens Tucker, LLP submits this Letter of Intent and the attached rezoning application (the “Application”) on behalf of 12Stone Church, Inc. (the “Applicant”), relative to a proposed mixed-use redevelopment on an approximately 69.09-acre tract of land (the “Property”) located along the westerly side of Buford Drive (State Route 20) north of its intersection with Braselton Highway (State Route 124). The Property is currently zoned R-100 and RA-200 and is located within the Community Mixed-Use Character Area as set forth in the Gwinnett 2040 Unified Plan (the “2040 Plan”).

Currently, the Property is developed as a large church campus with an approximately 105,000 square foot main church building that is served by large surface parking lots. The proposed redevelopment would repurpose large areas of these surface parking lots for multifamily residential and community open space uses to create a vibrant, walkable, mixed-use campus that is focused around the existing church building, which would remain and serve as the community’s central anchor point. A total of 256 multifamily units are proposed in 4 buildings along the Property’s frontage on Buford Drive with a pod of 85 townhomes located towards the rear of the Property behind the existing church building. The two existing full-access driveways would be maintained in place to serve the campus. A large, community lawn/green space is planned in the center of the development which could be programmed to accommodate community gatherings such as food truck events and community picnics in addition to passive recreational opportunities. A network of internal sidewalks and trails is also proposed in order to provide pedestrian connectivity among the proposed uses and additional recreational opportunities. Additionally, a

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proposed 10-foot wide multi-use trail would be installed along Buford Drive to enhance the walkability of the surrounding area and help make that corridor more pedestrian-oriented. Residents of the proposed redevelopment would have convenient access to nearby commercial uses located at the intersection of Buford Drive and Ridge Road/Russell Road to the north, as well as employment uses located along the University Parkway (State Route 316) corridor to the south including Georgia Gwinnett College and the Progress Center. Residents would also have convenient access to larger, regional mixed-use and entertainment centers at the Exchange and the Mall of Georgia located approximately 4 miles to the north at the Buford Drive and Interstate 85 interchange. Ultimately, the proposed 12Stone Village is a mixed-use redevelopment that is designed to activate underutilized portions of the Property and create inviting community space for on-site residents as well as those living in surrounding areas. 12Stone Village furthers the church's mission by inviting the community into its campus and supports its efforts to serve a growing, increasingly diverse area of the County.

The proposed redevelopment is also in line with the policies of the 2040 Plan, which designates the Property as within the Community Mixed-Use Character Area. Policies for this character area encourage the development and redevelopment of areas located along major transportation corridors in ways that make those corridors more pedestrian-oriented. In fact, the 2040 Plan specifically encourages mixed-use developments that include apartments and townhomes as "potential development types." With the proposed 256 multifamily dwellings and 85 townhomes, the proposed net density of 5.37 units per acre fits squarely within this policy and is within the range set forth in Gwinnett County's Unified Development Ordinance (the "UDO") for the requested MU-C (Community Mixed-Use) zoning classification. Additionally, in an effort to provide appropriate transitions from the proposed redevelopment to surrounding residential uses and provide effective visual and aural screening, the Applicant is proposing to provide a 100-foot wide undisturbed buffer along residential lots in the adjacent Rivershyre subdivision, which is double the width required by the UDO. In addition to the undisturbed buffer, the Applicant is proposing to install a 6-foot tall vinyl-coated chain link fence (colored black or green) with added privacy screening slats along the common property boundary line of the subject property and adjacent lots in Rivershyre. In addition, this fence would be provided as a "living fence" with climbing hydrangea or similar plants which would grow on the fence creating a vegetative screen wall. To supplement the proposed undisturbed buffer and provide additional dense understory

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screening, the Applicant is proposing to provide a double row of evergreen screen trees internal to the site and along the buffer. Moreover, in response to comments made by community members at two community meetings held by the Applicant on the Property, the location of the townhome and multifamily residential components have been flipped. That is, the apartments are now located along Buford Drive and the townhomes are proposed towards the rear of the Property behind the existing church building. This underscores the transitional nature of the proposed development by stepping down from Buford Drive to attractive multifamily buildings, stepping down from there to the existing church, stepping down to single-family attached homes, then moving to a 100-foot wide buffer before stepping down again to single-family detached homes to the west.

In order to redevelop the Property as set forth on the submitted site plan and the Application, the Applicant also requests the following relief from the UDO:

- A variance from UDO §210-210.6 to provide less than 20% of the gross floor area as commercial/retail/office and institutional space. Including the existing church building, the non-residential component of the proposed development represents approximately 21.2% of the overall project's gross floor area. The existing institutional use provides 19.6% and the proposed commercial/retail/office space provides 1.6%.
- A variance from UDO §210-225.4 to not provide an interparcel driveway connection to the nonresidential property to the north. Steep topography and the Yellow River are located along the Property's northern boundary line and frustrate the possibility of an interparcel driveway connection to the adjacent property to the north, which, although zoned R-100, contains a non-residential land use.
- A variance from UDO §210.225.2(B)(1) to allow internal streets longer than 600 feet without an intersection with another street or alley.
- A variance from UDO §210.225.2(B)(3)(c) to allow gated access to new streets.
- A variance from UDO §210.225.5(A)(2) to allow off-street parking on either side of the principal buildings as depicted on the site plan submitted with the Application.
- A variance from UDO §220-30.3(E)(4) to allow primary building facades and entrances to be located more than 70 feet from the public rights-of-way, to be oriented as depicted on the site plan submitted with the application, and to provide a sidewalk network as depicted on the site plan.

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- A waiver from UDO §620-30 to not install additional landscaping in the portions of the existing parking lot which will remain. The internal parking lots will not be visible from external right-of-way and will be screened from view by vegetation along Buford Drive and the proposed townhomes. The portions of the existing parking lots which will remain were installed in accordance with development regulations in place at the time the church was constructed in 2008.

The proposed development is compatible with existing land uses and zoning classifications of the surrounding area, is in line with the policy and intent of the 2040 Plan, and is an appropriate land use due to the Property's close proximity to major transportation corridors including Buford Drive, Interstate 85, and University Parkway (State Route 316). The Applicant welcomes the opportunity to meet with staff of the Gwinnett County Department of Planning and Development to answer any questions or to address any concerns relating to the matters set forth in this letter or in the Application filed herewith. The Applicant respectfully requests your approval of the Application.

Respectfully submitted this 1st day of November, 2022.

MAHAFFEY PICKENS TUCKER, LLP

Shane Lanham

Shane M. Lanham
Attorneys for the Applicant

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REZONING APPLICANT'S RESPONSE
STANDARDS GOVERNING THE EXERCISE OF THE ZONING POWER

PURSUANT TO REQUIREMENTS OF THE UNIFIED DEVELOPMENT ORDINANCE, THE BOARD OF COMMISSIONERS FINDS THAT THE FOLLOWING STANDARDS ARE RELEVANT IN BALANCING THE INTEREST IN PROMOTING THE PUBLIC HEALTH, SAFETY, MORALITY OR GENERAL WELFARE AGAINST THE RIGHT TO THE UNRESTRICTED USE OF PROPERTY AND SHALL GOVERN THE EXERCISE OF THE ZONING POWER.

PLEASE RESPOND TO THE FOLLOWING STANDARDS IN THE SPACE PROVIDED OR USE AN ATTACHMENT AS NECESSARY:

- (A) WHETHER A PROPOSED REZONING WILL PERMIT A USE THAT IS SUITABLE IN VIEW OF THE USE AND DEVELOPMENT OF ADJACENT AND NEARBY PROPERTY:

Please see attached

- (B) WHETHER A PROPOSED REZONING WILL ADVERSELY AFFECT THE EXISTING USE OR USABILITY OF ADJACENT OR NEARBY PROPERTY:

Please see attached

- (C) WHETHER THE PROPERTY TO BE AFFECTED BY A PROPOSED REZONING HAS REASONABLE ECONOMIC USE AS CURRENTLY ZONED:

Please see attached

- (D) WHETHER THE PROPOSED REZONING WILL RESULT IN A USE WHICH WILL OR COULD CAUSE AN EXCESSIVE OR BURDENSOME USE OF EXISTING STREETS, TRANSPORTATION FACILITIES, UTILITIES, OR SCHOOLS:

Please see attached

- (E) WHETHER THE PROPOSED REZONING IS IN CONFORMITY WITH THE POLICY AND INTENT OF THE LAND USE PLAN:

Please see attached

- (F) WHETHER THERE ARE OTHER EXISTING OR CHANGING CONDITIONS AFFECTING THE USE AND DEVELOPMENT OF THE PROPERTY WHICH GIVE SUPPORTING GROUNDS FOR EITHER APPROVAL OR DISAPPROVAL OF THE PROPOSED REZONING:

Please see attached

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STANDARDS GOVERNING THE EXERCISE OF THE ZONING POWER

- A. Approval of the proposed rezoning will permit a use that is suitable in view of the use and development of adjacent and nearby property. The Buford Drive corridor is characterized by a mix of residential, office/industrial, and commercial uses. The proposed mixed-use redevelopment would complement this existing land use mix and provide residential critical mass to support nearby employment uses located along the Buford Drive corridor. The proposed redevelopment also provides substantial buffering to mitigate impacts on surrounding residential properties.
- B. Approval of the proposed rezoning will not adversely affect the existing use or usability of adjacent or nearby property. Rather the proposed development would complement surrounding land uses by providing additional housing options for current and future residents of Gwinnett County.
- C. The Applicant submits that due to its size, location, and layout, the subject property does not have a reasonable economic use as currently zoned.
- D. Approval of the proposed rezoning will not result in a use which will or could cause an excessive or burdensome use of existing streets, transportation facilities, utilities, or schools. The property has convenient access to Buford Drive (State Route 20), Braselton Highway (State Route 124), University Parkway (State Route 316), and Interstate 85.
- E. The proposed rezoning is in conformity with the policy and intent of the 2040 Plan. The subject Property is designated as within the Community Mixed-Use character area which encourages mixed-use developments and redevelopments. The proposed mixed-use redevelopment, pursuant to the MU-C (Community Mixed-Use District) zoning classification would complement the existing mixed-use nature of the surrounding area, enhance an existing community-serving use, and further the policy and intent of the 2040 Plan.
- F. The Property's frontage on Buford Drive and its close proximity to intense commercial, employment, and entertainment uses provide additional supporting grounds for approval of the Application.

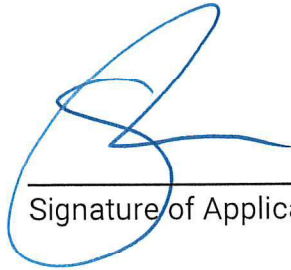
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Gwinnett County Planning Division
Rezoning Application
Last Updated 5/2021

REZONING APPLICANT'S CERTIFICATION

THE UNDERSIGNED BELOW IS AUTHORIZED TO MAKE THIS APPLICATION. THE UNDERSIGNED IS AWARE THAT NO APPLICATION OR REAPPLICATION AFFECTING THE SAME LAND SHALL BE ACTED UPON WITHIN 12 MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS UNLESS WAIVED BY THE BOARD OF COMMISSIONERS. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION BE ACTED UPON IN LESS THAN SIX (6) MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS.



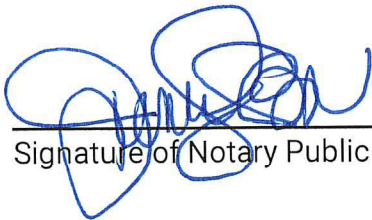
Signature of Applicant

10/3/22

Date

Shane Lanham, attorney for the Applicant

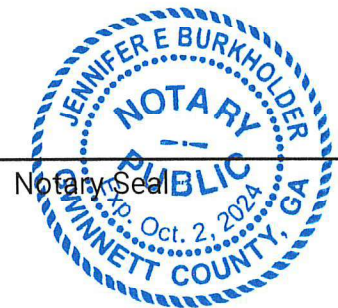
Type or Print Name and Title



Signature of Notary Public

10/3/22

Date



Notary Seal

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Gwinnett County Planning Division
Rezoning Application
Last Updated 12/2015

REZONING APPLICANT'S CERTIFICATION

THE UNDERSIGNED BELOW IS AUTHORIZED TO MAKE THIS APPLICATION. THE UNDERSIGNED IS AWARE THAT NO APPLICATION OR REAPPLICATION AFFECTING THE SAME LAND SHALL BE ACTED UPON WITHIN 12 MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS UNLESS WAIVED BY THE BOARD OF COMMISSIONERS. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION BE ACTED UPON IN LESS THAN SIX (6) MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS.



Signature of Applicant

10/4/2022

Date

Anthony Ferrari, CFO

Type or Print Name and Title



Signature of Notary Public

10/4/2022

Date



M Cate
NOTARY PUBLIC
Hall County
State of Georgia
My Comm. Expires January 27, 2025

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Gwinnett County Planning Division
Rezoning Application
Last Updated 12/2015

REZONING PROPERTY OWNER'S CERTIFICATION

THE UNDERSIGNED BELOW, OR AS ATTACHED, IS THE OWNER OF THE PROPERTY CONSIDERED IN THIS APPLICATION. THE UNDERSIGNED IS AWARE THAT NO APPLICATION OR REAPPLICATION AFFECTING THE SAME LAND SHALL BE ACTED UPON WITHIN 12 MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS UNLESS WAIVED BY THE BOARD OF COMMISSIONERS. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION BE ACTED UPON IN LESS THAN SIX (6) MONTHS FROM THE DATE OF LAST ACTION BY THE BOARD OF COMMISSIONERS.



Signature of Property Owner

10/4/2022

Date

Anthony Ferrari, CFO

Type or Print Name and Title



Signature of Notary Public

10/4/2022

Date



M Cate
NOTARY PUBLIC
Hall County
State of Georgia
My Comm. Expires January 27, 2025

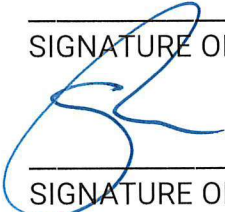
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CONFLICT OF INTEREST CERTIFICATION FOR REZONING

The undersigned below, making application for a Rezoning, has complied with the Official Code of Georgia Section 36-67A-1, et. seq, Conflict of Interest in Zoning Actions, and has submitted or attached the required information on the forms provided.

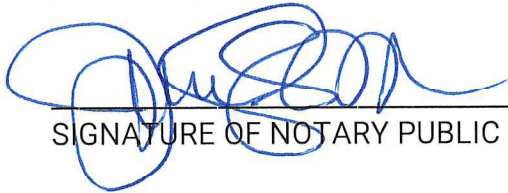
SIGNATURE OF APPLICANT DATE TYPE OR PRINT NAME AND TITLE



10/3/22

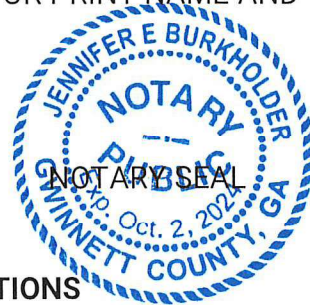
Shane Lanham, attorney for the Applicant

SIGNATURE OF APPLICANT'S ATTORNEY OR REPRESENTATIVE DATE TYPE OR PRINT NAME AND TITLE



10/3/22

SIGNATURE OF NOTARY PUBLIC DATE



DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

Have you, within the two years immediately preceding the filing of this application, made campaign contributions aggregating \$250.00 or more to a member of the Board of Commissioners or a member of the Gwinnett County Planning Commission?

YES NO Please see attached

YOUR NAME

If the answer is yes, please complete the following section:

NAME AND OFFICAL POSITION OF GOVERNMENT OFFICIAL	CONTRIBUTIONS (List all which aggregate to \$250 or More)	DATE CONTRIBUTION WAS MADE (Within last two years)
Please see attached		

Attach additional sheets if necessary to disclose or describe all contributions.

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**CONFLICT OF INTEREST CERTIFICATION FOR REZONING/CHANGE IN
CONDITIONS AND SPECIAL USE PERMIT APPLICATIONS**

MAHAFFEY PICKENS TUCKER, LLP

<u>NAME AND OFFICIAL POSITION OF GOVERNMENT OFFICIAL</u>	<u>CONTRIBUTIONS</u>	<u>DATE</u>
Kirkland Carden	\$2,800	11/18/2021
Marlene Fosque	\$1,500	06/15/2022
Ben Ku	\$1,500	10/03/2022

SHANE LANHAM

<u>NAME AND OFFICIAL POSITION OF GOVERNMENT OFFICIAL</u>	<u>CONTRIBUTIONS</u>	<u>DATE</u>
Gabe Okoye	\$500	09/14/2022

LEE TUCKER

<u>NAME AND OFFICIAL POSITION OF GOVERNMENT OFFICIAL</u>	<u>CONTRIBUTIONS</u>	<u>DATE</u>
Marlene Fosque	\$1,000	09/22/2022


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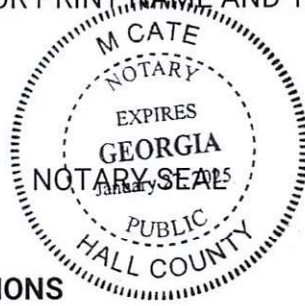
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 10/4/2022 Anthony Ferrari, CFO
SIGNATURE OF APPLICANT DATE TYPE OR PRINT NAME AND TITLE

SIGNATURE OF APPLICANT'S DATE TYPE OR PRINT NAME AND TITLE
ATTORNEY OR REPRESENTATIVE

 10/4/2022
SIGNATURE OF NOTARY PUBLIC DATE



M Cate
NOTARY PUBLIC
Hall County
State of Georgia
My Comm. Expires January 27, 2025

DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

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YES NO Anthony Ferrari
YOUR NAME

If the answer is yes, please complete the following section:

NAME AND OFFICAL POSITION OF GOVERNMENT OFFICIAL	CONTRIBUTIONS (List all which aggregate to \$250 or More)	DATE CONTRIBUTION WAS MADE (Within last two years)

Attach additional sheets if necessary to disclose or describe all contributions.

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Rezoning Application
Last Updated 5/2021

VERIFICATION OF CURRENT PAID PROPERTY TAXES FOR REZONING

THE UNDERSIGNED BELOW IS AUTHORIZED TO MAKE THIS APPLICATION. THE UNDERSIGNED CERTIFIES THAT ALL GWINNETT COUNTY PROPERTY TAXES BILLED TO DATE FOR THE PARCEL LISTED BELOW HAVE BEEN PAID IN FULL TO THE TAX COMMISSIONER OF GWINNETT COUNTY, GEORGIA. IN NO CASE SHALL AN APPLICATION OR REAPPLICATION FOR REZONING BE PROCESSED WITHOUT SUCH PROPERTY VERIFICATION.

***Note: A SEPARATE VERIFICATION FORM MUST BE COMPLETED FOR EACH TAX PARCEL INCLUDED IN THE REZONING REQUEST.**

PARCEL I.D. NUMBER: 7 - 051 - 003
(Map Reference Number) District Land Lot Parcel

Signature of Applicant

10/3/22

Date

Shane Lanham, attorney for the Applicant

Type or Print Name and Title

*****PLEASE TAKE THIS FORM TO THE TAX COMMISSIONERS OFFICE AT THE GWINNETT JUSTICE AND ADMINISTRATION CENTER, 75 LANGLEY DRIVE, FOR THEIR APPROVAL BELOW.*****

TAX COMMISSIONERS USE ONLY

(PAYMENT OF ALL PROPERTY TAXES BILLED TO DATE FOR THE ABOVE REFERENCED PARCEL HAVE BEEN VERIFIED AS PAID CURRENT AND CONFIRMED BY THE SIGNATURE BELOW)

JESSILYN MCDUFFIE

TSA

NAME

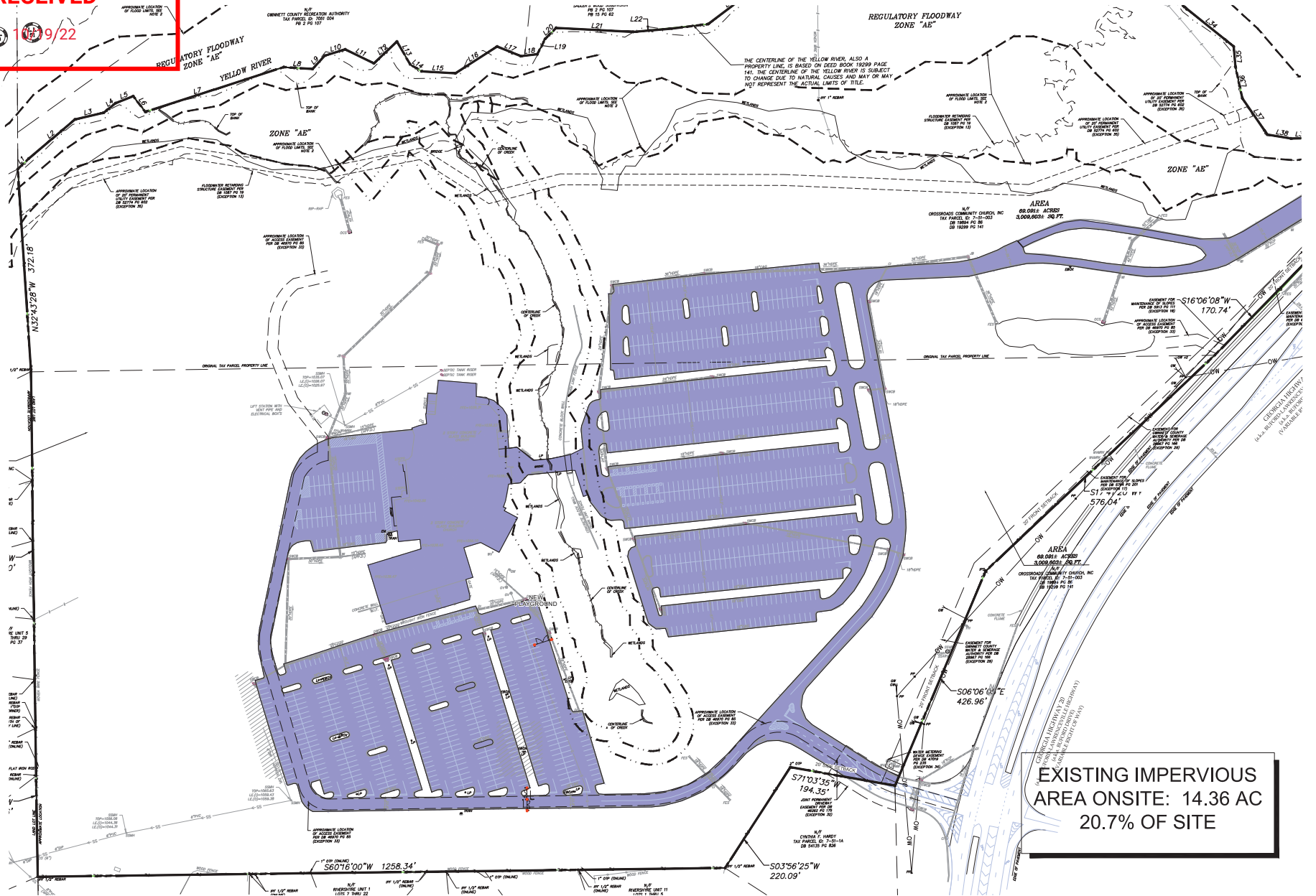
TITLE

10/03/2022

DATE

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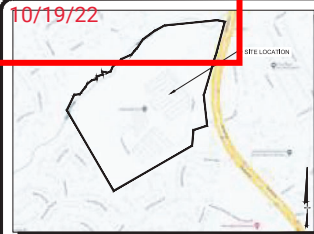


12STONE VILLAGE - EXISTING IMPERVIOUS

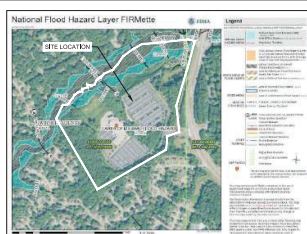
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SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
NOT TO SCALE

DWELLING UNIT SIZES PROVIDED:

MISC DWELLING SIZES:
1 TOWNHOMES 750 SF
2 BDRM MIN. 1,000 SF
3 BDRM MIN. 1,200 SF

MISC TOWNHOME OVERLAP SIZES:
1 HEATED FLOOR AREA 7,000 SF

MULTIFAMILY UNIT MIX PROVIDED:

1 BDRM/650-710 UNITS
2 BDRM/850-110 UNITS
3 BDRM/1050-120 UNITS

GENERAL NOTES:

- ALL STREETS INTERNAL TO DEVELOPMENT TO BE PRIVATE STREETS.
- ALL SIDEWALKS PROPOSED ON SITE TO BE CONCRETE AND FIVE FEET WIDE UNLESS OTHERWISE NOTED ON PLAN.
- ALL DRIVEWAYS SHALL BE CONCRETE AND FIVE FEET WIDE UNLESS OTHERWISE NOTED ON PLAN.
- ALL DRIVEWAYS SHALL BE CONCRETE AND FIVE FEET WIDE UNLESS OTHERWISE NOTED ON PLAN.
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- ALL DRIVEWAYS SHALL BE CONCRETE AND FIVE FEET WIDE UNLESS OTHERWISE NOTED ON PLAN.

VARIANCE REQUEST:

- A VARIANCE FROM UDDO SIGNAGE TO PROVIDE LESS THAN 20% OF THE GROSS FLOOR AREA AS COMMERCIAL RETAIL OFFICE SPACE, INCLUDING THE EXISTING CHURCH BUILDING, THE NONRESIDENTIAL COMPONENT OF THE PROPOSED DEVELOPMENT THE EXISTING MULTIFAMILY USE PROVIDES TO AND THE PROPOSED DEVELOPMENT.
- A VARIANCE FROM UDDO SIGNAGE TO NOT PROVIDE AN INTERCONNECTIVE DRIVEWAY CONNECTION TO THE NONRESIDENTIAL PROPERTY TO THE NORTH, STEEP TOPOGRAPHY AND THE YELLOW RIVER ARE LOCATED ALONG THE PROPERTY'S NORTHERN BOUNDARY LINE AND PRESENT THE POSSIBILITY OF AN INTERCONNECTIVE DRIVEWAY CONNECTION TO THE ADJACENT PROPERTY TO THE NORTH WHICH, ALTHOUGH ZONED IN THE COUNTY AS A NONRESIDENTIAL LAND USE.
- A VARIANCE FROM UDDO SIGNAGE TO NOT INSTALL ADJUTANT LANDSCAPING ON THE PORTION OF THE EXISTING PARKING LOT WHICH WILL REMAIN, THE EXISTING PARKING LOT WILL NOT BE REVEAL FROM THE REVEALMENT AND WILL BE SCREENED FROM VIEW BY VEGETATION ALONG BURD DRIVE AND THE PROPOSED TOWNHOME, THE PORTION OF THE EXISTING PARKING LOTS WHICH WILL REMAIN WERE INSTALLED IN ACCORDANCE WITH DEVELOPMENT REGULATIONS IN PLACE AT THE TIME THE CHURCH WAS CONSTRUCTED IN 2000.

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LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARCHITECTS + SURVEYING + CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT
12STONE CHURCH
A MASTER PLANNED RESIDENTIAL DEVELOPMENT
AT
1322 BUFORD DRIVE
LAWRENCEVILLE, GA 30043
GWINNETT COUNTY JURISDICTION
FOR
WOOD PARTNERS

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
1	09/30/2022	SCL	NEIGHBOR COMMENTS
2	10/8/2022	SCL	NEW PLAN PER COMMENTS
3	10/13/2022	SCL	Replace Density/Net Plan

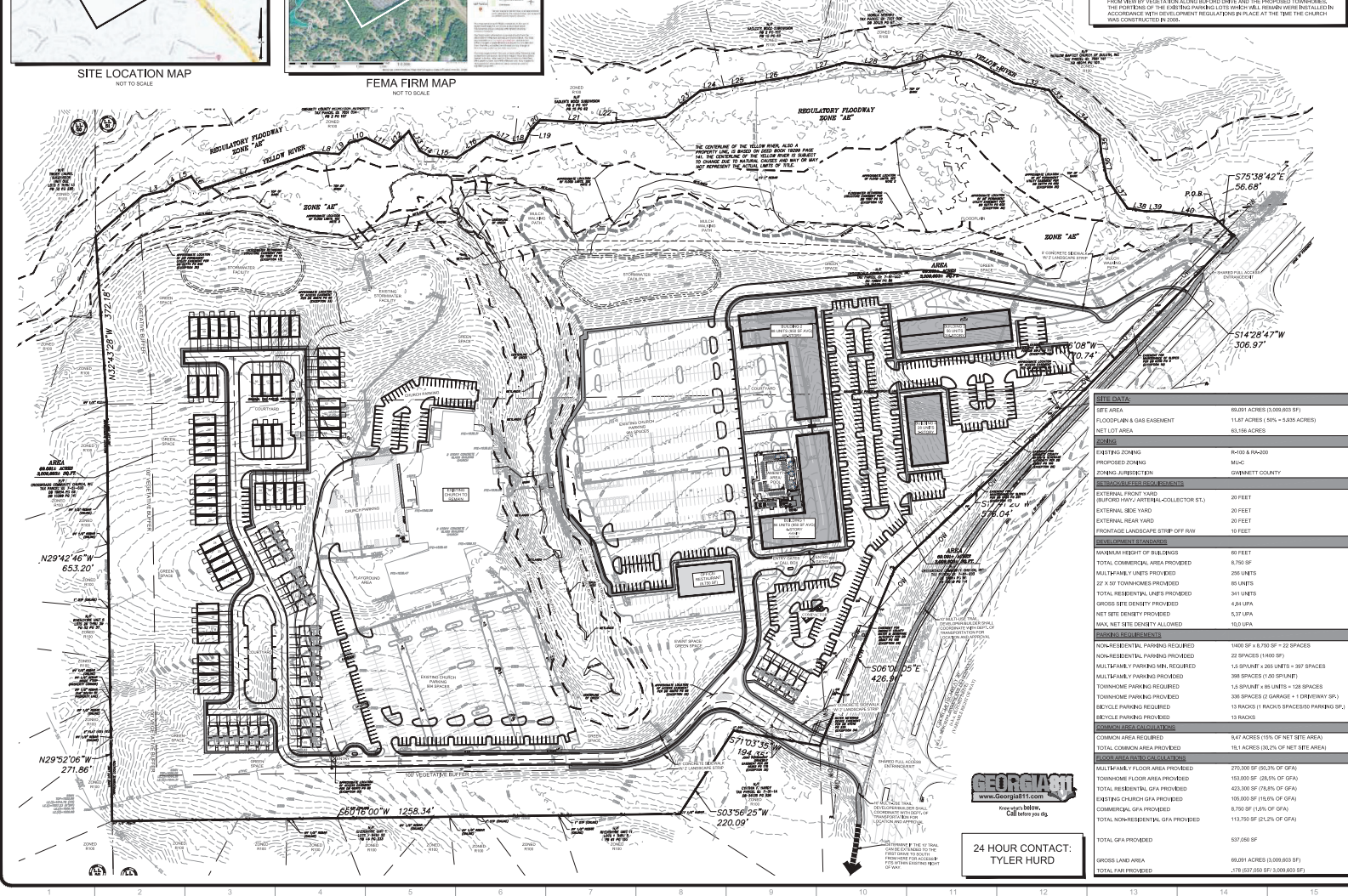
THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH ORIGINAL SIGNATURE.

CONV. LEVEL II DESIGN PROFESSIONAL CERTIFICATE IN LANDSCAPE ARCHITECTURE EX. 10326204

MASTER REZONING PLAN

SCALE: 1" = 100'
DATE: 08/01/2022
PROJECT: 21247,00A

Z1
SHEET



SITE DATA:

SITE AREA	69,291 ACRES (3,009,603 SF)
FLOODPLAIN & GAS EASEMENT	11,847 ACRES (512,633 ACRES)
NET LOT AREA	63,158 ACRES
ZONING:	
EXISTING ZONING	R-100 & RA-200
PROPOSED ZONING	MUC
ZONING JURISDICTION	GWINNETT COUNTY
REGULATORY FLOODWAYS:	
EXTERNAL FRONT YARD	30 FEET
REAR YARD (WITH FIRE/COLLECTOR ST.)	30 FEET
EXTERNAL REAR YARD	30 FEET
FRONTAGE LANDSCAPE STRIP OFF RW	10 FEET
HEIGHTS:	
MAXIMUM HEIGHT OF BUILDINGS	40 FEET
TOTAL COMMERCIAL AREA PROVIDED	6,750 SF
MULTIFAMILY UNITS PROVIDED	258 UNITS
22' X 30' TOWNHOMES PROVIDED	85 UNITS
TOTAL RESIDENTIAL UNITS PROVIDED	343 UNITS
GROSS SITE DENSITY PROVIDED	4.24 UPA
NET SITE DENSITY PROVIDED	6.37 UPA
MAX. NET SITE DENSITY ALLOWED	10.0 UPA
PARKING PROVISIONS:	
NON-RESIDENTIAL PARKING REQUIRED	1480 SF @ 8,750 SF = 22 SPACES
NON-RESIDENTIAL PARKING PROVIDED	22 SPACES (1480 SF)
MULTIFAMILY PARKING MIN. REQUIRED	1.5 SPACES X 265 UNITS = 397 SPACES
MULTIFAMILY PARKING PROVIDED	398 SPACES (130 DRIVEWAY)
TOWNHOME PARKING REQUIRED	1.5 SPACES X 85 UNITS = 128 SPACES
TOWNHOME PARKING PROVIDED	398 SPACES (2 GARAGE + 1 DRIVEWAY SP.)
BICYCLE PARKING PROVIDED	15 RACKS (1 RACKS SPACES) PARKING SP.
BICYCLE PARKING REQUIRED	15 RACKS
COMMON AREAS:	
COMMON AREA REQUIRED	647 ACRES (15% OF NET SITE AREA)
TOTAL COMMON AREA PROVIDED	161 ACRES (26.2% OF NET SITE AREA)
PERMITTED GFA:	
MULTIFAMILY FLOOR AREA PROVIDED	275,300 SF (50.3% OF GFA)
TOWNHOME FLOOR AREA PROVIDED	153,000 SF (28% OF GFA)
TOTAL RESIDENTIAL GFA PROVIDED	428,300 SF (78.3% OF GFA)
PERMITTED COMMERCIAL GFA PROVIDED	15,000 SF (2.7% OF GFA)
COMMERCIAL GFA PROVIDED	6,750 SF (1.2% OF GFA)
TOTAL NON-RESIDENTIAL GFA PROVIDED	113,750 SF (21.2% OF GFA)
TOTAL GFA PROVIDED	637,050 SF
GROSS LAND AREA	69,291 ACRES (3,009,603 SF)
TOTAL FARE PROVIDED	178 (57,050 SF @ 3,009,603 SF)

GEORGIA
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Tyler Hurd
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24 HOUR CONTACT:
TYLER HURD

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12STONE VILLAGE - PREVIOUS SITE RENDERING 1

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12STONE VILLAGE - PREVIOUS SITE RENDERING 2

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12STONE VILLAGE - NEW SITE RENDERING

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12STONE VILLAGE - DISTANCE TO PROPERTY LINE

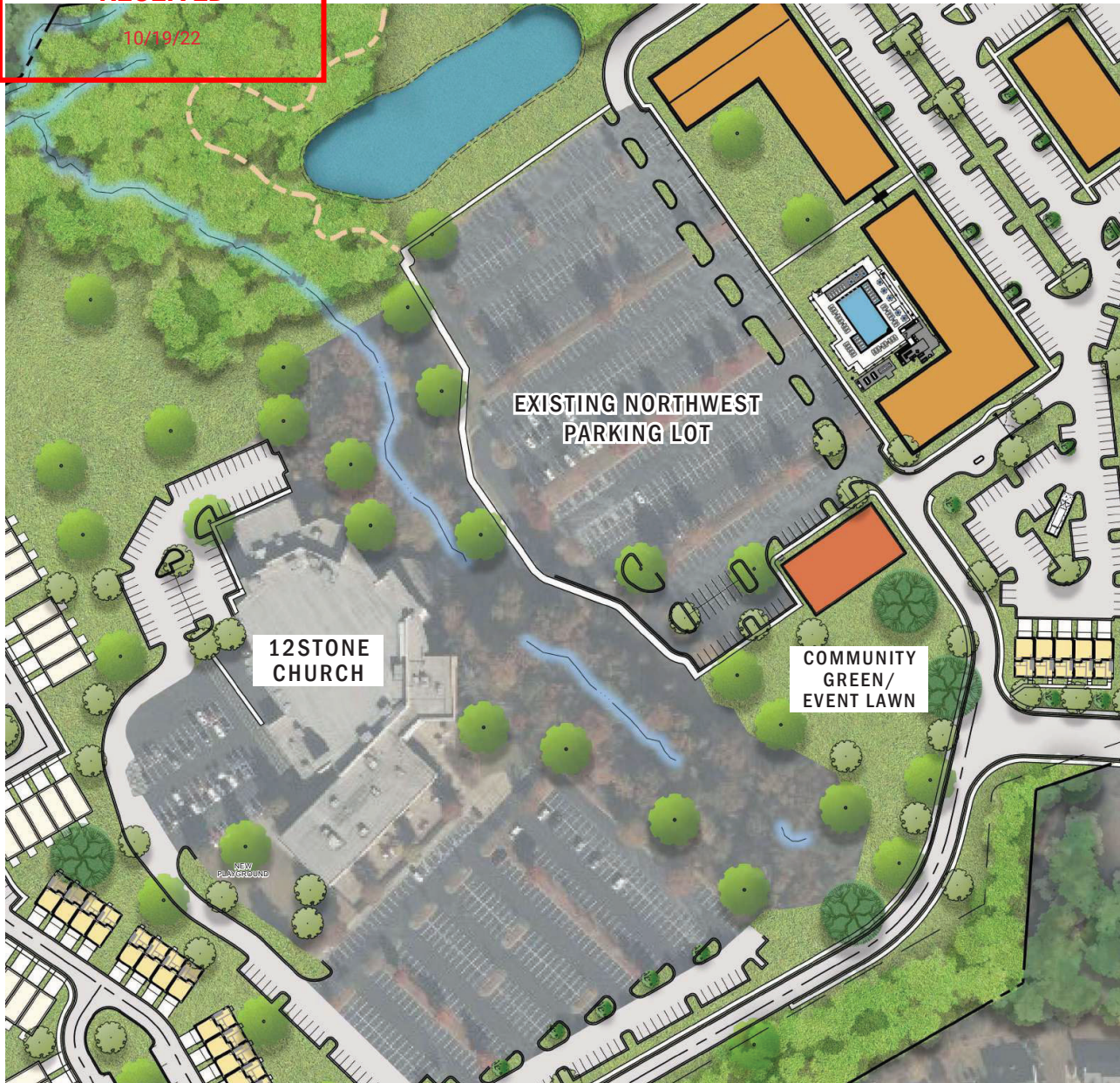
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PARKING LOT AND OPEN SPACE USE



12STONE VILLAGE WILL UTILIZE EXISTING PARKING LOTS AND OPEN SPACE TO HOST A VARIETY OF COMMUNITY PROGRAMS.



NORTHWEST PARKING LOT CAN BE USED DURING OFF-PEAK HOURS FOR COMMUNITY ACTIVITIES. SEE PROGRAMMING IDEAS.

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SEATING/ EATING AREA



FOOD TRUCK PLAZA



OPEN EVENT LAWN

12STONE VILLAGE - EVENT SPACE

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EXISTING NORTHWEST
PARKING LOT

COMMUNITY
GREEN/
EVENT LAWN

CONCEPT PROGRAMMING: OPEN LAWN & PAVILION



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EXISTING NORTHWEST
PARKING LOT

COMMUNITY
GREEN/
EVENT LAWN

CONCEPT PROGRAMMING: FOOD TRUCK FEST



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MULTI-FAMILY ELEVATIONS



12STONE VILLAGE

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360 STUDIO
LANDSCAPE
ARCHITECTURE

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MULTI-FAMILY ELEVATIONS



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MULTI-FAMILY ELEVATIONS



1 SK-1 BUILDING 1 AND 2 - TRANSVERSE ELEVATION
SCALE: 3/32" = 1'-0"

ELEVATION KEYNOTES

- 1 BRICK
- 2 BRICK MASONRY
- 3 BRICK ACCENT
- 4 BRICK CLADDING LAP SIDING
- 5 BRICK CLADDING PANELS SIDING NO SIDING
- 6 BRICK CLADDING SIDING TRIP
- 7 BRICK MASONRY
- 8 BRICK MASONRY
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- 99 BRICK MASONRY
- 100 BRICK MASONRY



2A SK-1 BUILDING 1 AND 2 - LONGITUDINAL ELEVATION
SCALE: 3/32" = 1'-0"



2B SK-1 BUILDING 1 AND 2 - LONGITUDINAL ELEVATION
SCALE: 3/32" = 1'-0"

Client: WOOD PARTNERS	Scale: AS NOTED	Sheet No:
Project: 12 STONES	Date: 09/27/2022	SK-1
Proj. No: 22051	Drawn By: NF	WWW.GEALATL.COM

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TOWNHOME ELEVATIONS



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SAMPLE SMALL-SCALE OFFICE/RETAIL



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LITTLE GEM MAGNOLIA



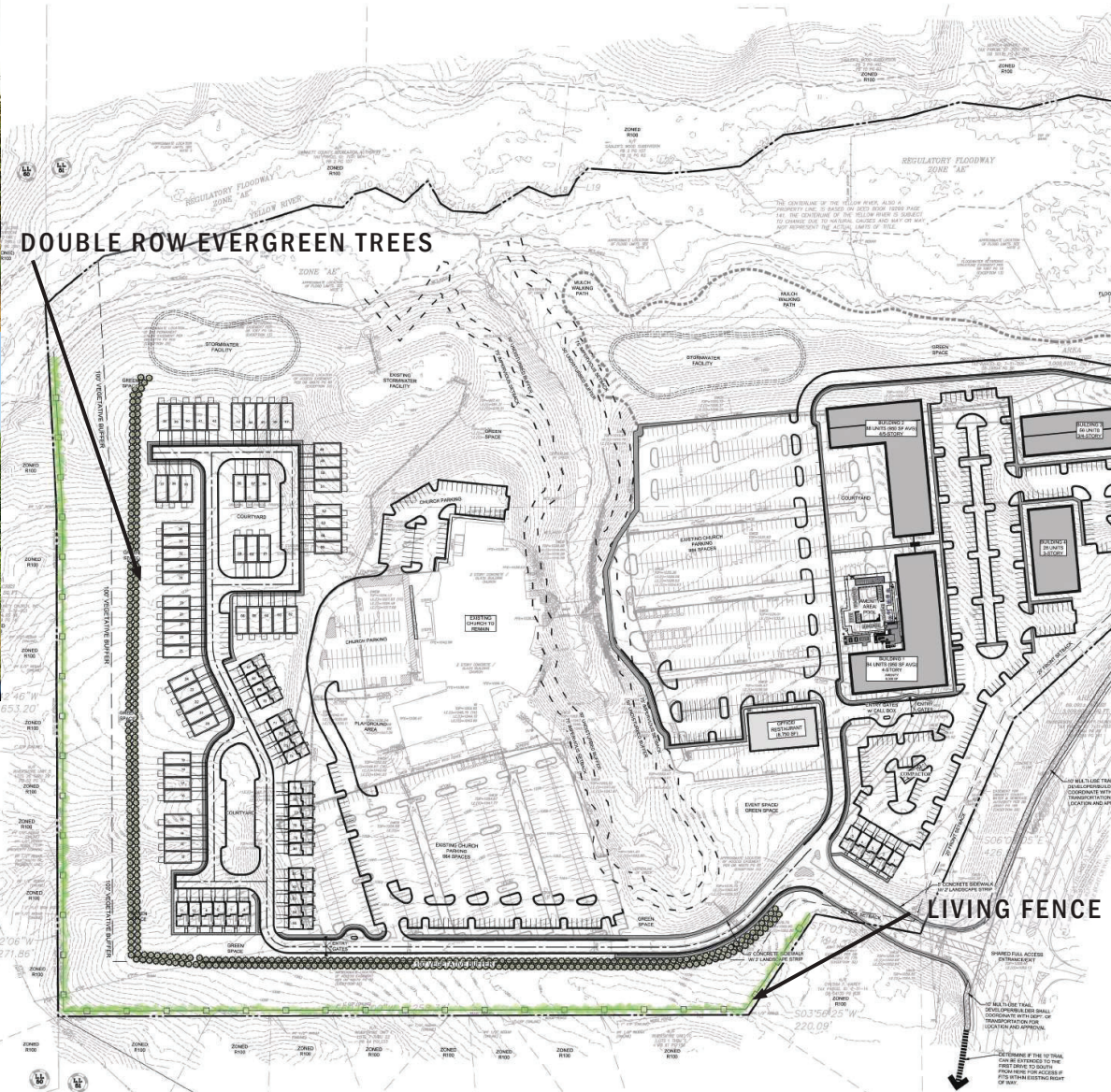
SAVANNAH HOLLY



EASTERN RED CEDAR

12STONE VILLAGE

LAWRENCEVILLE, GWINNETT COUNTY, GA



LANDSCAPE EXHIBIT

PLANT PALLETTE INSPIRATION



CLIMBING HYDRANGEA (ON FENCE)



EVERGREEN CLEMATIS (ON FENCE)



BLACK CHAINLINK FENCE WITH PRIVACY SLATS



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**EVENT SPACE IN CONTEXT:
FOOD TRUCKS & GREEN SPACE**



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**EVENT SPACE IN CONTEXT:
FOOD TRUCKS**



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EVENT SPACE IN CONTEXT: FOOD TRUCKS, OUTDOOR SEATING AREA & GREEN SPACE



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LANDSCAPE
ARCHITECTURE

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EVENT SPACE IN CONTEXT: GREEN SPACE & AMPHITHEATER



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EVENT SPACE IN CONTEXT: OUTDOOR SEATING & GREEN SPACE



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1
TH-1
6 TOWNHOMES - FRONT ELEVATION
SCALE: 3/16" = 1'-0"

ELEVATION KEYNOTES	
1	BRICK
2	BRICK SOLDIER
3	BRICK ACCENT
4	FIBER CEMENT LAP SIDING
5	FIBER CEMENT PANEL SIDING W/ BATTENS
6	FIBER CEMENT BOARD TRIM
7	VINYL WINDOWS
8	VINYL PATIO DOOR
9	VINYL RAILING
10	STOREFRONT GLASS
11	BRACKET
12	CORBEL
13	CANOPY
14	ASPHALT SHINGLE ROOFING
15	ALUM. GUTTER
16	ALUM. DOWNSPOUT
17	METAL SCREEN
18	WOOD DECK
19	GARAGE DOOR
20	
21	

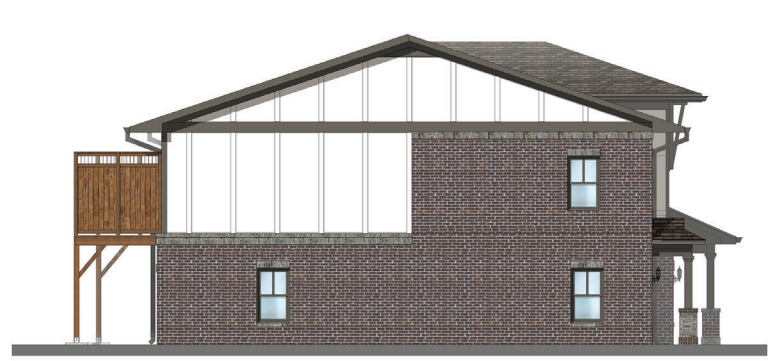


2
TH-1
6 TOWNHOMES - REAR ELEVATION
SCALE: 3/16" = 1'-0"

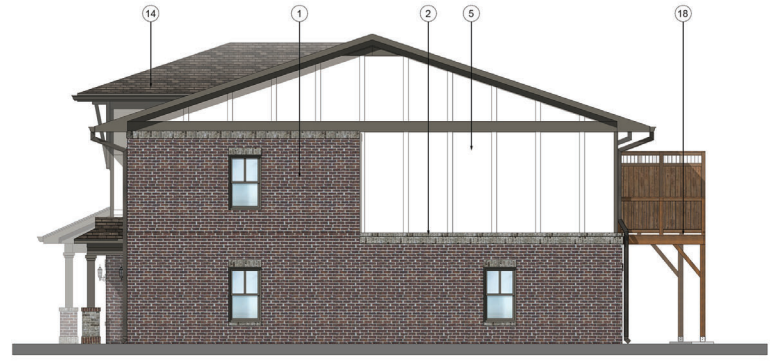
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3
TH-1
6 TOWNHOMES - LEFT ELEVATION
SCALE: 3/16" = 1'-0"



4
TH-1
6 TOWNHOMES - RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

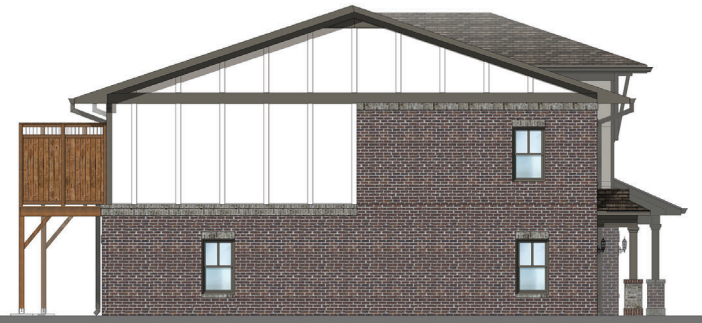
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Project: 12 STONES	Date: 11/9/2022	TH-1
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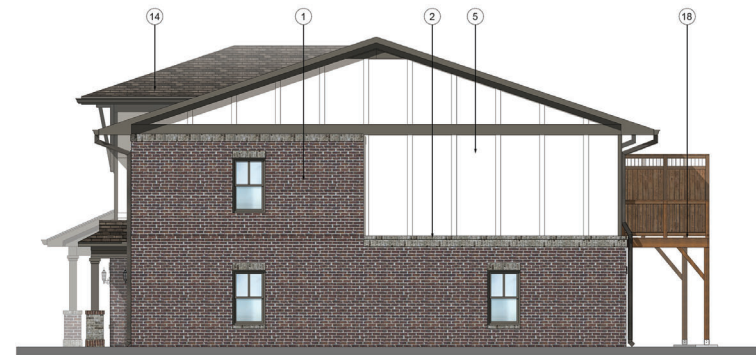
1
TH-2
5 TOWNHOMES - FRONT ELEVATION
SCALE: 3/16" = 1'-0"



2
TH-2
5 TOWNHOMES - REAR ELEVATION
SCALE: 3/16" = 1'-0"



3
TH-2
5 TOWNHOMES - LEFT ELEVATION
SCALE: 3/16" = 1'-0"



4
TH-2
5 TOWNHOMES - RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

ELEVATION KEYNOTES

- 1 BRICK
- 2 BRICK SOLDIER
- 3 BRICK ACCENT
- 4 FIBER CEMENT LAP SIDING
- 5 FIBER CEMENT PANEL SIDING W/ BATTENS
- 6 FIBER CEMENT BOARD TRIM
- 7 VINYL WINDOWS
- 8 VINYL PATIO DOOR
- 9 VINYL RAILING
- 10 STOREFRONT GLASS
- 11 BRACKET
- 12 CORBEL
- 13 CANOPY
- 14 ASPHALT SHINGLE ROOFING
- 15 ALUM. GUTTER
- 16 ALUM. DOWNSPOUT
- 17 METAL SCREEN
- 18 WOOD DECK
- 19 GARAGE DOOR
- 20
- 21



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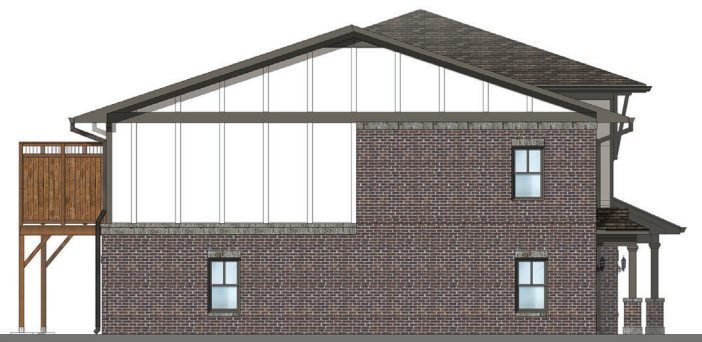
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Project: 12 STONES	Date: 11/9/2022	TH-2
Proj. No. 22051	Drawn By: MF	WWW.GLAATL.COM



1
TH-3
4 TOWNHOMES - FRONT ELEVATION
SCALE: 3/16" = 1'-0"



2
TH-3
4 TOWNHOMES - REAR ELEVATION
SCALE: 3/16" = 1'-0"



3
TH-3
4 TOWNHOMES - LEFT ELEVATION
SCALE: 3/16" = 1'-0"



4
TH-3
4 TOWNHOMES - RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

ELEVATION KEYNOTES

1	BRICK
2	BRICK SOLDIER
3	BRICK ACCENT
4	FIBER CEMENT LAP SIDING
5	FIBER CEMENT PANEL SIDING W/ BATTENS
6	FIBER CEMENT BOARD TRIM
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8	VINYL PATIO DOOR
9	VINYL RAILING
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16	ALUM. DOWNSPOUT
17	METAL SCREEN
18	WOOD DECK
19	GARAGE DOOR
20	
21	



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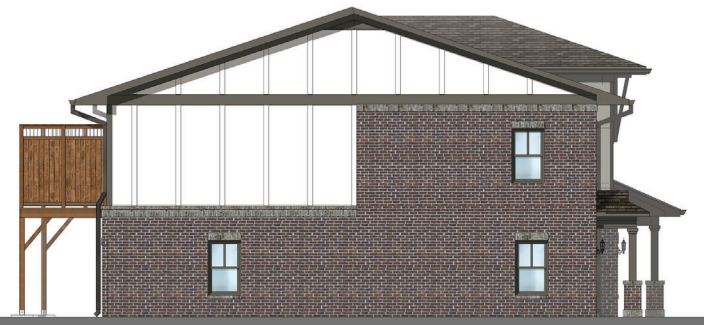
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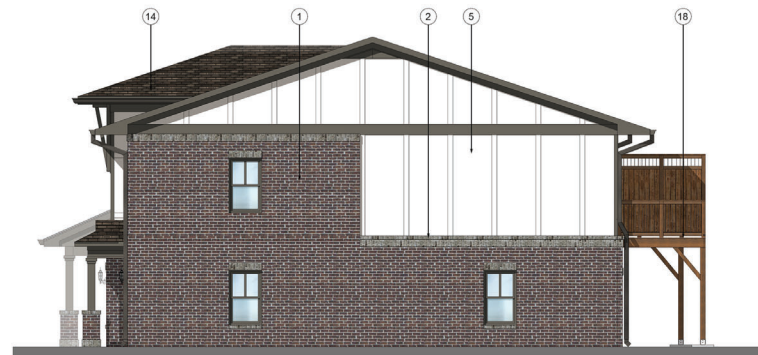
1
TH-4
3 TOWNHOMES - FRONT ELEVATION
SCALE: 3/16" = 1'-0"



2
TH-4
3 TOWNHOMES - REAR ELEVATION
SCALE: 3/16" = 1'-0"



3
TH-4
3 TOWNHOMES - LEFT ELEVATION
SCALE: 3/16" = 1'-0"



4
TH-4
3 TOWNHOMES - RIGHT ELEVATION
SCALE: 3/16" = 1'-0"

ELEVATION KEYNOTES

1	BRICK
2	BRICK SOLDIER
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4	FIBER CEMENT LAP SIDING
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19	GARAGE DOOR
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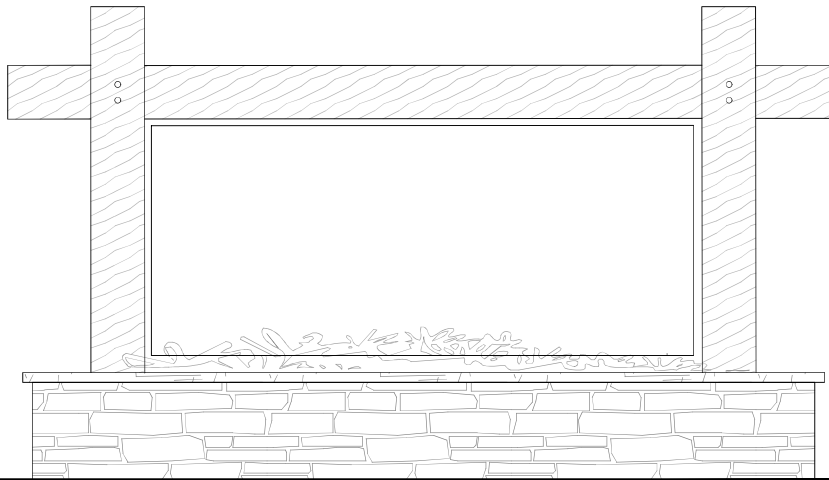
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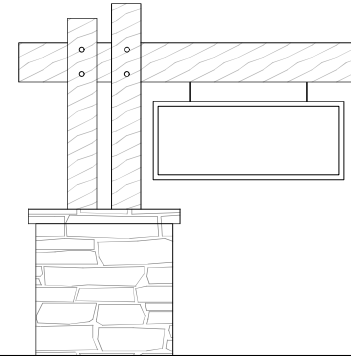
11/9/22



MONUMENT SIGNAGE



MULTI-FAMILY MONUMENT SIGN



TOWNHOME MONUMENT SIGN

12STONE VILLAGE
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**TRAFFIC IMPACT STUDY
FOR
MIXED-USE DEVELOPMENT AT SR 20 (BUFORD DRIVE)
GWINNETT COUNTY, GEORGIA**



Prepared for:

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September 30, 2022
A & R Project # 22-169

EXECUTIVE SUMMARY

Traffic impacts were evaluated for the mixed-use development that will be located to west of the intersection of SR 20 (Buford Drive) and Coronada Trail in Gwinnett County, Georgia. The development will consist of following:

- Single Family Attached Housing: 49 units
- Multifamily Housing (Low-Rise): 180 units
- Multifamily Housing (Mid-Rise): 165 units
- Restaurant: 8,750 sf

The development proposes to use the existing two full access driveways on SR 20 (Buford Drive) via Wildcat Drive and Coronada Trail.

Existing and future operations during the AM peak hour (7:00 AM – 9:00 AM) and PM peak hour (4:00 PM – 6:00 PM) before and after completion of the project were analyzed at the following intersections:

1. SR 20 (Buford Drive) and Wildcat Drive/ 12 Stone Church's Northern Driveway
2. SR 20 (Buford Drive) and Coronada Trail/ 12 Stone Church's Southern Driveway
3. SR 20 (Buford Drive) and Russell Road/ Ridge Road
4. SR 20 (Buford Drive) and SR 124 (Braselton Highway)
5. SR 20 (Buford Drive) and Swanson Drive
6. SR 20 (Buford Drive) and Calvin Davis Circle
7. SR 20 (Buford Drive) and SR 316 (University Parkway) WB Ramps
8. SR 20 (Buford Drive) and SR 316 (University Parkway) EB Ramps

Traffic Operations Summary

Table E1 below provides a summary of traffic operations for the “No-Build” and “Build” conditions for the year 2024 with and without system improvements. All approaches that do not meet the level-of-service (LOS) standard (considered failing) are highlighted in Table E1. Table E1 for “Build” conditions also includes the project’s total added trip and the respective percentage of overall total “Build” condition approach traffic volume for all failing LOS approaches after all improvements are completed. After the system improvements are implemented all the failing intersections will operate at LOS “D” or better in AM and PM peak hours.

TABLE E1 — FUTURE INTERSECTION OPERATIONS AT FAILING APPROACHES

Intersection	<i>No-Build Condition: LOS (Delay)</i>				<i>Build Condition: LOS (Delay)</i>							
	NO IMPROVEMENTS		PLANNED AND SYSTEM IMPROVEMENTS		NO IMPROVEMENTS		PLANNED AND SYSTEM IMPROVEMENTS		SITE VOLUMES AT FAILING APPROACH BUILD WITH IMPROVEMENTS		PERCENT SITE TRIPS OF TOTAL APPROACH TRIPS AT FAILING APPROACHES	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1 SR 20 (Buford Drive) @ Russell Rd/ Ridge Rd -Eastbound Approach -Westbound Approach	D (42.0) E (77.8)	D (48.8) F (80.2)	C (33.8) E (76.5)	D (39.1) E (76.9)	D (42.5) E (77.7)	D (50.8) F (86.9)	C (33.8) E (75.7)	D (40.4) E (78.5)	No Failing Approaches	No Failing Approaches	No Failing Approaches	No Failing Approaches
2 SR 20 (Buford Drive) @ Calvin Davis Cir -Eastbound Approach	F (*)	D (27.9)	F (110.6)	E (40.6)	F (*)	E (40.4)	F (124.2)	E (48.9)	4	16	3%	10%
3 SR 20 (Buford Drive) @ Wildcat Dr -Eastbound Approach -Westbound Approach	D (29.7) D (30.9)	E (44.6) F (50.9)	D (29.7) D (30.9)	E (44.6) F (50.9)	F (81.7) D (32.9)	F (93.3) F (65.5)	F (81.7) D (32.9)	F (93.3) F (65.5)	15 0	14 2	88% 0%	82% 17%
4 SR 20 (Buford Drive) @ Coronada Trail -Eastbound Approach -Westbound Approach	D (29.8) E (46.0)	F (53.1) E (47.1)	D (29.8) E (46.0)	F (53.1) E (47.1)	D (33.5) F (55.8)	F (56.2) F (99.6)	D (33.5) F (55.8)	F (56.2) F (99.6)	59 0	58 2	97% 0%	95% 14%

The results of future “No-Build” traffic operations indicate that the signalized study intersection (SR 20 (Buford Drive) @ Russell Rd/ Ridge Rd) will operate at an overall level of service “D” or better in AM and PM peak hours. The signalized intersection SR 20 (Buford Drive) at Russell Rd/ Ridge Rd eastbound and westbound approaches will operate at a level of service “F” in AM and PM peak hours.

The following (unsignalized) intersections are operating at a level of service “F” in AM and/or PM peak hour for the stop-controlled approaches:

- Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle
- Intersection 3: SR 20 (Buford Drive) at Wildcat Drive
- Intersection 4: SR 20 (Buford Drive) at Coronada Trail

Recommended System Improvements

The following are system improvements that were identified from the “No-Build” condition analysis.

Intersection 1: SR 20 (Buford Drive) at Russell Rd/ Ridge Rd

- Installation of a westbound left turn lane

Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle

- Installation of an eastbound right turn lane

After the recommended system improvements are implemented, the signalized intersection SR 20 (Buford Drive) at Russell Road/Ridge Road approaches will operate at LOS “E” in both the AM and PM peak hours. The intersection of SR 20 (Buford Drive) at Calvin Davis Circle will still operate at a LOS “F” in the AM peak hours with a lower delay. No other improvements are recommended at the intersections of SR 20 (Buford Drive) at Wildcat Drive and SR 20 (Buford Drive) at Coronada Trail as traffic signal does not appear to be warranted by the MUTCD.

TABLE OF CONTENTS

Item	Page
Executive Summary	E-1
Traffic Operations Summary	E-2
Recommended System Improvements.....	E-3
Introduction	1
Study Network Determination	3
Existing Roadway Facilities	5
Existing Bicycle and Pedestrian Facilities.....	7
Alternative Modes of Access.....	7
Study Methodology	8
Unsignalized Intersections	8
Signalized Intersections	9
Existing 2022 Traffic Analysis	10
Existing Traffic Volumes.....	10
Existing Traffic Operations.....	13
Project Description	15
Site Plan	15
Planned Bicycle and Pedestrian Facilities	17
Potential Pedestrian and Bicycle Destinations	17
Planned Transit Facilities	17
Consistency with Adopted Comprehensive Plan	17
Future Land Use Map.....	18
Project Phasing.....	18
Trip Generation.....	19
Trip Distribution.....	19
Future 2024 Traffic Analysis.....	21
Future “No-Build” Conditions	21
Annual Traffic Growth.....	21
Planned and Programmed Improvements in Study Area	23
Future “No-Build” Traffic Operations	23
Recommended System Improvements.....	24
Future “Build” Conditions	25
Future “Build” Traffic Operations	27
Conclusions and Recommendations	30
Recommended System Improvements.....	30
Appendix	

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LIST OF TABLES

Item	Page
Table E1 – Future Intersection Operations at Failing Approaches	E-2
Table 1 – Level-of-service Criteria for Unsignalized Intersections.....	8
Table 2 – Level-of-service Criteria for Signalized Intersections	9
Table 3 – Existing Intersection Operations	13
Table 4 – Trip Generation	19
Table 5 – Planned and Programmed Improvements	23
Table 6 – Future “No-Build” Intersection Operations.....	23
Table 7 – Future “Build” Intersection Operations	27

LIST OF FIGURES

Item	Page
Figure 1 – Location Map and Study Intersections.....	4
Figure 2 – Existing Weekday Peak Hour Volumes.....	11
Figure 3 – Existing Traffic Control and Lane Geometry	12
Figure 4 – Site Plan.....	16
Figure 5 – Outer Leg Trip Distribution and Site Generated Peak Hour Volumes.....	20
Figure 6 – Future (No-Build) Weekday Peak Hour Volumes.....	22
Figure 7 – Future (Build) Weekday Peak Hour Volumes.....	26
Figure 8 – Future Traffic Control and Lane Geometry	29

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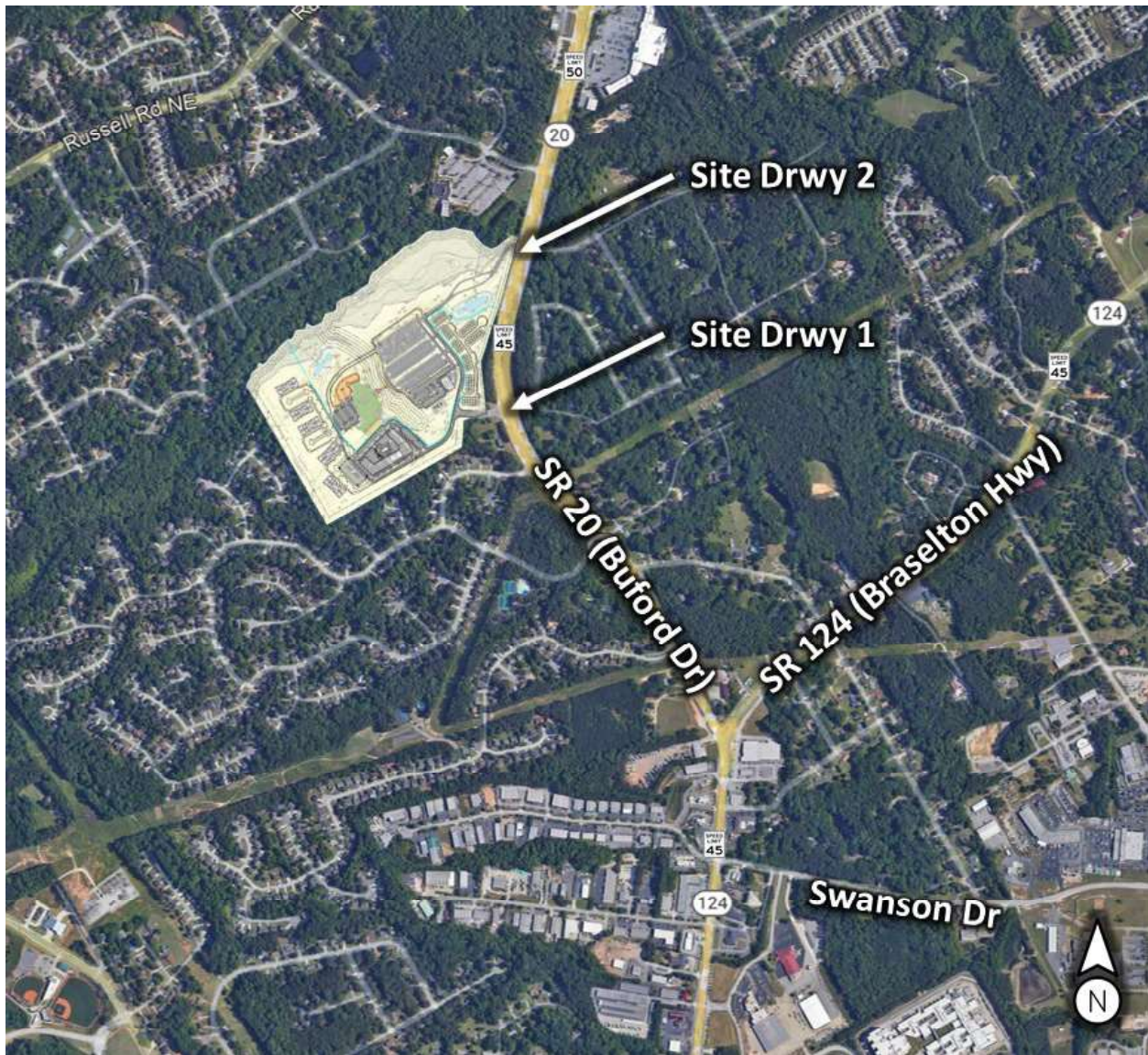
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INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed mixed-use development that will be located to west of the intersection of SR 20 (Buford Drive) and Coronada Trail in Gwinnett County, Georgia. The traffic analysis evaluates the current operations and the future conditions with the traffic generated by the development. The development will consist of following:

- Single Family Attached Housing: 49 units
- Multifamily Housing (Low-Rise): 180 units
- Multifamily Housing (Mid-Rise): 165 units
- Restaurant: 8,750 sf



The development proposes access at the following locations:

- Site Driveway 1: Existing full access driveway on SR 20 (Buford Drive) via Coronada Trail
- Site Driveway 2: Existing full access driveway on SR 20 (Buford Drive) via Wildcat Drive

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

1. SR 20 (Buford Drive) and Wildcat Drive/ 12 Stone Church's Northern Driveway
2. SR 20 (Buford Drive) and Coronada Trail/ 12 Stone Church's Southern Driveway
3. SR 20 (Buford Drive) and Russell Road/ Ridge Road
4. SR 20 (Buford Drive) and SR 124 (Braselton Highway)
5. SR 20 (Buford Drive) and Swanson Drive
6. SR 20 (Buford Drive) and Calvin Davis Circle
7. SR 20 (Buford Drive) and SR 316 (University Parkway) WB Ramps
8. SR 20 (Buford Drive) and SR 316 (University Parkway) EB Ramps

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report.

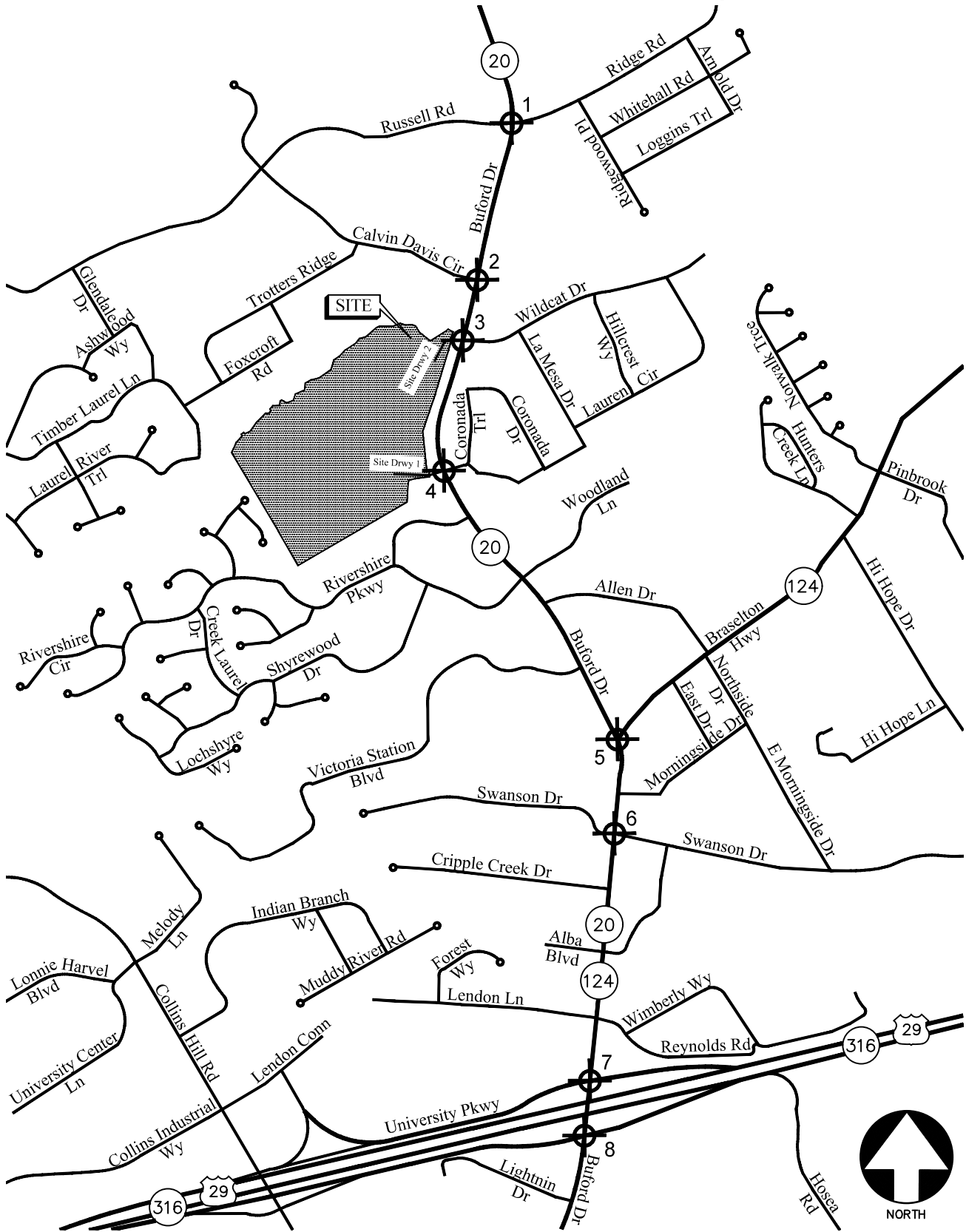
STUDY NETWORK DETERMINATION

The study network included in the study is shown below:

1. SR 20 (Buford Drive) and Wildcat Drive/ 12 Stone Church's Northern Driveway
2. SR 20 (Buford Drive) and Coronada Trail/ 12 Stone Church's Southern Driveway
3. SR 20 (Buford Drive) and Russell Road/ Ridge Road
4. SR 20 (Buford Drive) and SR 124 (Braselton Highway)
5. SR 20 (Buford Drive) and Swanson Drive
6. SR 20 (Buford Drive) and Calvin Davis Circle
7. SR 20 (Buford Drive) and SR 316 (University Parkway) WB Ramps
8. SR 20 (Buford Drive) and SR 316 (University Parkway) EB Ramps

The location of the development and the surrounding study network is shown in Figure 1. Other intersections within this corridor, such as unsignalized side streets, right-in/ right-out driveways or private driveways have not been included in the study network.

⊕ Study Intersection



LOCATION MAP

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EXISTING ROADWAY FACILITIES

The following is a brief description of each of the roadway facilities located in proximity to the site:

SR 20 (Buford Drive)

SR 20 (Buford Drive) is a north-south, four-lane, median-divided roadway with a speed limit of 45 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) (Station ID 135-0127) indicate that the daily traffic volume on SR 20 (Buford Drive) in 2019 was 50,700 vehicles per day north of Morningside Drive. GDOT classifies SR 20 (Buford Drive) as a Principal Urban Arterial roadway.

SR 124 (Braselton Highway)

SR 124 (Braselton Highway) is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID 135-0203) indicate that the daily traffic volume on SR 124 (Braselton Highway) in 2019 was 19,000 vehicles per day west of Sunny Field Lane. GDOT classifies SR 124 (Braselton Highway) as an Urban Minor Arterial roadway.

SR 316 (University Parkway)

SR 316 (University Parkway) is an east-west, four-lane, median-divided roadway with a posted speed limit of 50 mph in the vicinity of the site.

Russell Road

West of SR 20 (Buford Drive), Russell Road is a two-lane, undivided roadway with a posted speed limit of 40 mph in the vicinity of the site. GDOT traffic counts (Station ID 135-8025) indicate that the daily traffic volume Russell Road in 2019 was 12,000 vehicles per day east of Country Parkway. GDOT classifies Russell Road as a Local Urban roadway.

Ridge Road

East of SR 20 (Buford Drive), Ridge Road is a two-lane, undivided roadway with a posted speed limit of 40 mph in the vicinity of the site.

Swanson Drive

Swanson Drive is an east-west, two-lane, undivided roadway with a posted speed limit of 35 mph in the vicinity of the site.

Calvin Davis Circle

West of SR 20 (Buford Drive), Calvin Davis Circle is a two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

Coronada Trail

East of SR 20 (Buford Drive), Coronada Trail is a two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

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Wildcat Drive

East of SR 20 (Buford Drive), Wildcat Drive is a two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site. Georgia Department of Transportation (GDOT) (Station ID 135-8139) indicate that the daily traffic volume on Wildcat Drive in 2019 was 250 vehicles per day west of Hillcrest Way.

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Existing Bicycle and Pedestrian Facilities

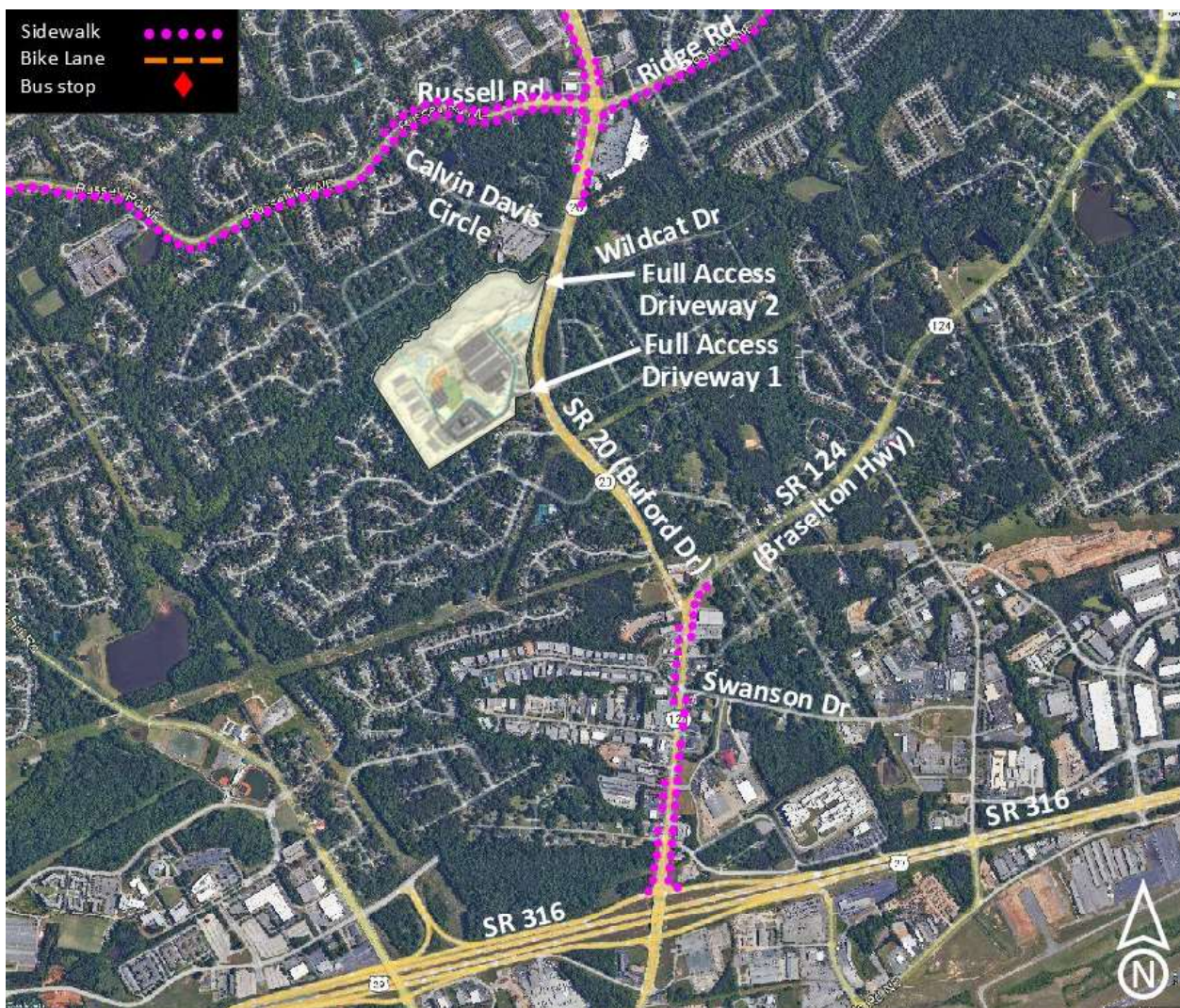
- No bike lanes, or bus stops were identified in the vicinity of the proposed development.
- Crosswalks are available at the neighboring intersections to the proposed site.

Alternative Modes of Access

- No existing transit routes were identified in the study network.
- No high-capacity transit stations were identified in the vicinity of the proposed development.

The graphic below includes the location of existing sidewalks in the study network.

Existing Alternative Transportation Map



STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board’s Highway Capacity Manual, 6th edition (HCM 6). Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

Unsignalized Intersections

For unsignalized intersections controlled by a stop sign on minor streets, the level-of-service (LOS) for motor vehicles with controlled movements is determined by the computed control delay according to the thresholds stated in Table 1 below. LOS is determined for each minor street movement (or shared movement), as well as major street left turns. LOS is not defined for the intersection as a whole or for major street approaches. The LOS of any controlled movement which experiences a volume to capacity ratio greater than 1 is designed as “F” regardless of the control delay.

Control delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Several factors affect the control delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from “A” through “F”. Level-of-service “A” indicates excellent operations with little delay to motorists, while level-of-service “F” exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross the main road without experiencing long delays.

TABLE 1 – LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 15	B	F
> 15 and ≤ 25	C	F
> 25 and ≤ 35	D	F
> 35 and ≤ 50	E	F
> 50	F	F

*The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection.

Source: Highway Capacity Manual, 6th edition, Exhibit 20-2 *LOS Criteria: Motorized Vehicle Mode*

Signalized Intersections

According to HCM procedures, LOS can be calculated for the entire intersection, each intersection approach, and each lane group. HCM uses control delay alone to characterize LOS for the entire intersection or an approach. Control delay per vehicle is composed of initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Both control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. A volume-to-capacity greater than 1.0 or more for a lane group indicates failure from capacity perspective. Therefore, such a lane group is assigned LOS F regardless of the amount of control delay.

Table 2 below summarizes the LOS criteria from HCM for motorized vehicles at signalized intersections.

TABLE 2 — LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS		
Control Delay (sec/vehicle) *	LOS for Lane Group by Volume-to-Capacity Ratio*	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 and ≤ 20	B	F
> 20 and ≤ 35	C	F
> 35 and ≤ 55	D	F
> 55 and ≤ 80	E	F
> 80	F	F

*For approach-based and intersection wide assessments, LOS is defined solely by control delay

Source: Highway Capacity Manual, 6th edition, Exhibit 19-8 *LOS Criteria: Motorized Vehicle Mode*

LOS A is typically assigned when the volume-to-capacity (v/c) ratio is low and either progression is exceptionally favorable, or the cycle length is very short. LOS B is typically assigned when the v/c ratio is low and either progression is highly favorable, or the cycle length is short. However, more vehicles are stopped than with LOS A. LOS C is typically assigned when progression is favorable, or the cycle length is moderate. Individual cycle failures (one or more queued vehicles are not able to depart because of insufficient capacity during the cycle) may begin to appear at this level. Many vehicles still pass through the intersection without stopping, but the number of vehicles stopping is significant. LOS D is typically assigned when the v/c ratio is high and either progression is ineffective, or the cycle length is long. There are many vehicle-stops and individual cycle failures are noticeable. LOS E is typically assigned when the v/c ratio is high, progression is very poor, the cycle length is long, and individual cycle failures are frequent. LOS F is typically assigned when the v/c ratio is very high, progression is very poor, the cycle length is long, and most cycles fail to clear the queue.

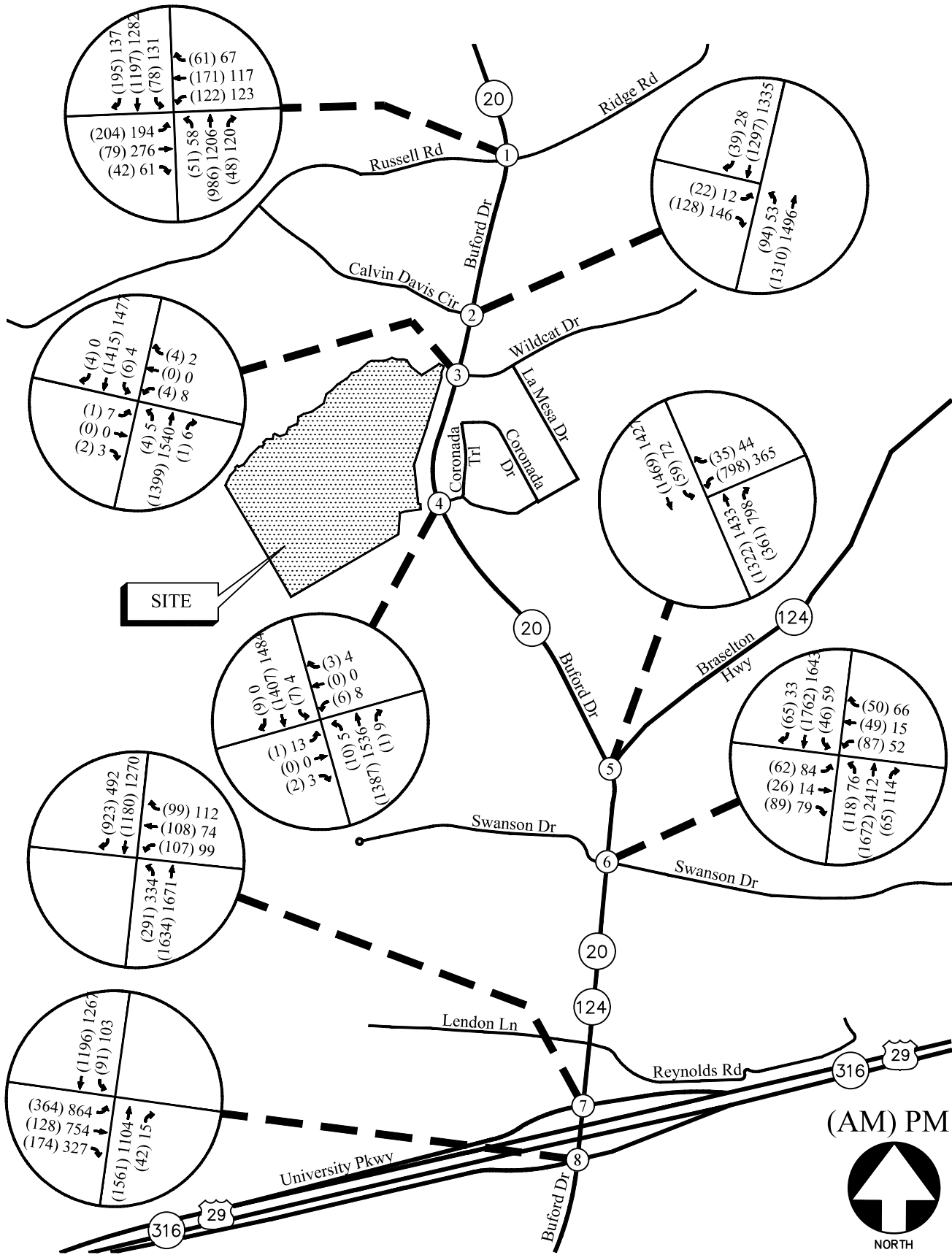
EXISTING 2022 TRAFFIC ANALYSIS

Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

1. SR 20 (Buford Drive) and Wildcat Drive/ 12 Stone Church's Northern Driveway
2. SR 20 (Buford Drive) and Coronada Trail/ 12 Stone Church's Southern Driveway
3. SR 20 (Buford Drive) and Russell Road/ Ridge Road
4. SR 20 (Buford Drive) and SR 124 (Braselton Highway)
5. SR 20 (Buford Drive) and Swanson Drive
6. SR 20 (Buford Drive) and Calvin Davis Circle
7. SR 20 (Buford Drive) and SR 316 (University Parkway) WB Ramps
8. SR 20 (Buford Drive) and SR 316 (University Parkway) EB Ramps

For intersections 1 to 6, turning movement counts were collected on Thursday, August 25, 2022, and for intersections 7 and 8, counts were collected on Wednesday, August 24, 2022. All turning movement counts were recorded during the AM and PM peak hours between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2. The existing traffic control and lane geometry for the intersections are shown in Figure 3.






EXISTING WEEKDAY PEAK-HOUR VOLUMES

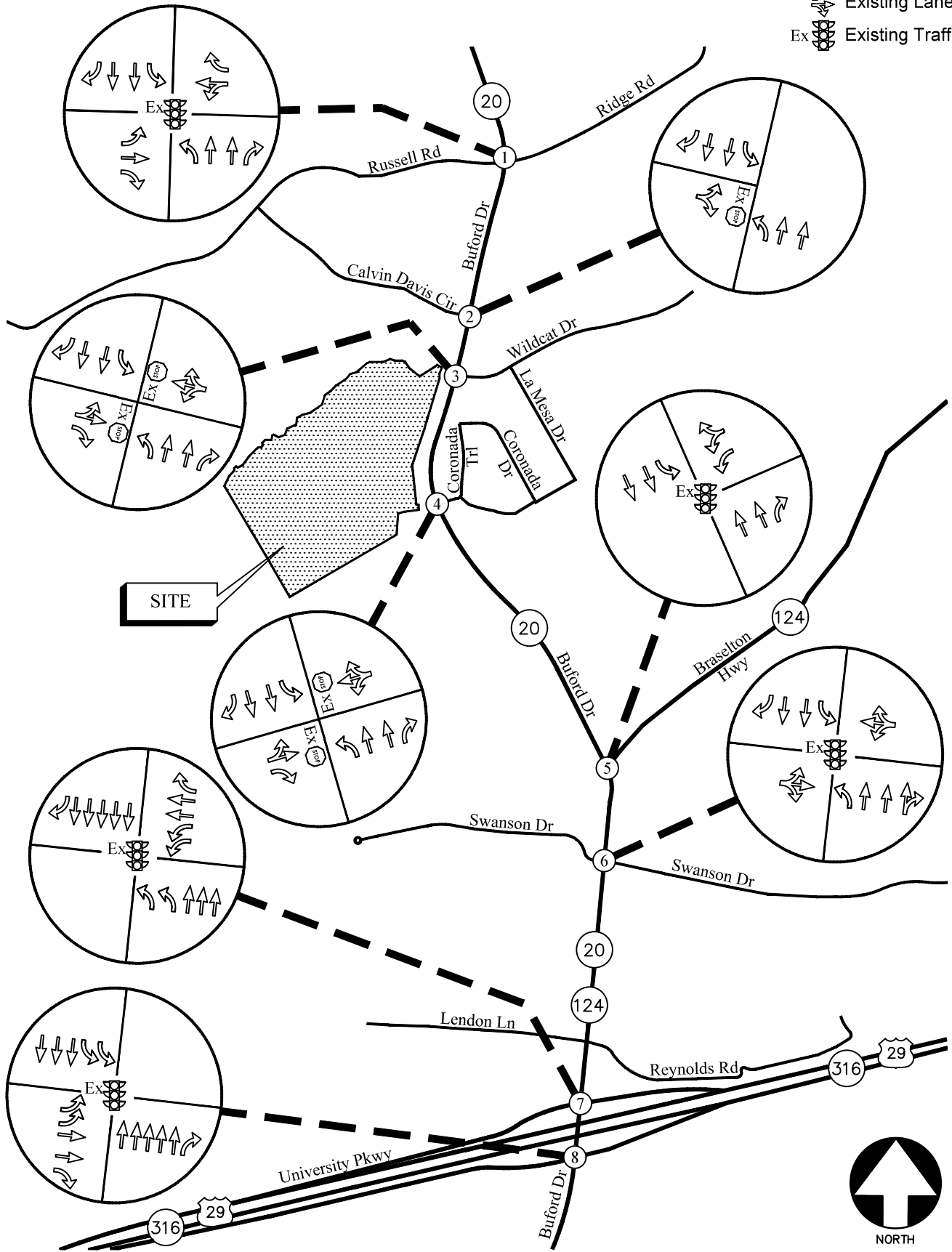
FIGURE 2

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LEGEND

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3

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Existing Traffic Operations

Existing 2022 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3.

TABLE 3 – EXISTING INTERSECTION OPERATIONS					
Intersection		Traffic Control	AM Peak	PM Peak	LOS Standard
1	SR 20 (Buford Drive) @ Russell Rd/ Ridge Rd	Signalized	D (40.2)	D (46.0)	D/D
	-Eastbound Approach		E (77.2)	E (75.9)	D/D
	-Westbound Approach		F (80.6)	F (85.8)	D/D
	-Northbound Approach		C (28.8)	D (36.9)	D/D
	-Southbound Approach		C (30.6)	D (35.9)	D/D
2	SR 20 (Buford Drive) @ Calvin Davis Cir	Stop Controlled on EB Approach	F (175.4)	C (23.8)	D/D
	-Eastbound Approach		B (14.9)	B (13.6)	D/D
	-Northbound Left				
3	SR 20 (Buford Drive) @ Wildcat Dr	Stop Controlled on EB and WB Approaches	D (28.0)	E (42.0)	D/D
	-Eastbound Approach		D (28.5)	E (47.6)	D/D
	-Westbound Approach		B (14.1)	B (13.8)	D/D
	-Northbound Left		B (14.0)	B (14.3)	D/D
	-Southbound Left				
4	SR 20 (Buford Drive) @ Coronada Trail	Stop Controlled on EB and WB Approaches	D (28.2)	E (49.1)	D/D
	-Eastbound Approach		E (42.6)	E (43.5)	D/D
	-Westbound Approach		B (14.1)	B (13.7)	D/D
	-Northbound Left		B (13.9)	B (14.1)	D/D
	-Southbound Left				
5	SR 20 (Buford Drive) @ SR 124 (Braselton Hwy)	Signalized	B (18.4)	A (9.4)	D/D
	-Westbound Approach		D (51.1)	D (53.3)	D/D
	-Northbound Approach		A (2.1)	A (0.6)	D/D
	-Southbound Approach		B (14.8)	A (6.0)	D/D
6	SR 20 (Buford Drive) @ Swanson Dr	Signalized	B (10.1)	B (13.2)	D/D
	-Eastbound Approach		D (45.6)	D (48.3)	D/D
	-Westbound Approach		D (47.8)	D (44.7)	D/D
	-Northbound Approach		B (11.4)	B (16.4)	D/D
	-Southbound Approach		A (1.6)	A (2.4)	D/D
7	SR 20 (Buford Drive) @ SR 316 (University Pkwy) WB Ramps	Signalized	B (11.6)	B (10.0)	D/D
	-Westbound Approach		D (52.5)	D (52.5)	D/D
	-Northbound Approach		B (10.3)	B (8.2)	D/D
	-Southbound Approach		A (6.1)	A (7.0)	D/D
8	SR 20 (Buford Drive) @ SR 316 (University Pkwy) EB Ramps	Signalized	B (12.1)	B (19.4)	D/D
	-Westbound Approach		D (46.3)	C (32.6)	D/D
	-Northbound Approach		A (8.1)	B (18.7)	D/D
	-Southbound Approach		A (4.0)	A (4.5)	D/D

* Delay exceeds 300 seconds

The results of existing traffic operations analysis indicate that all the signalized study intersections are operating at an overall level-of-service "D" or better in both the AM and PM peak hours. The un-signalized approaches of intersections are operating at a level of service "E" or better in AM and PM peak hours except the eastbound approach at the intersection of SR 20 (Buford Drive) at Calvin Davis Circle which will operate at level of service "F" in AM peak hour. These are addressed in the future traffic operations sections.

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PROJECT DESCRIPTION

The proposed mixed-use development will be located to the west of the intersection of SR 20 (Buford Drive) and Coronada Trail in Gwinnett County. The development will consist of following:

- Single Family Attached Housing: 49 units
- Multifamily Housing (Low-Rise): 180 units
- Multifamily Housing (Mid-Rise): 165 units
- Fast Casual Restaurant: 8,750 sf



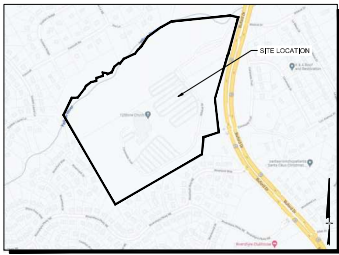
The development proposes access at the following locations:

- Site Driveway 1: Existing full access driveway on SR 20 (Buford Drive) via Coronada Trail
- Site Driveway 2: Existing full access driveway on SR 20 (Buford Drive) via Wildcat Drive

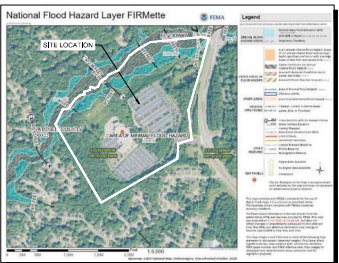
Site Plan

A site plan is shown in Figure 4.

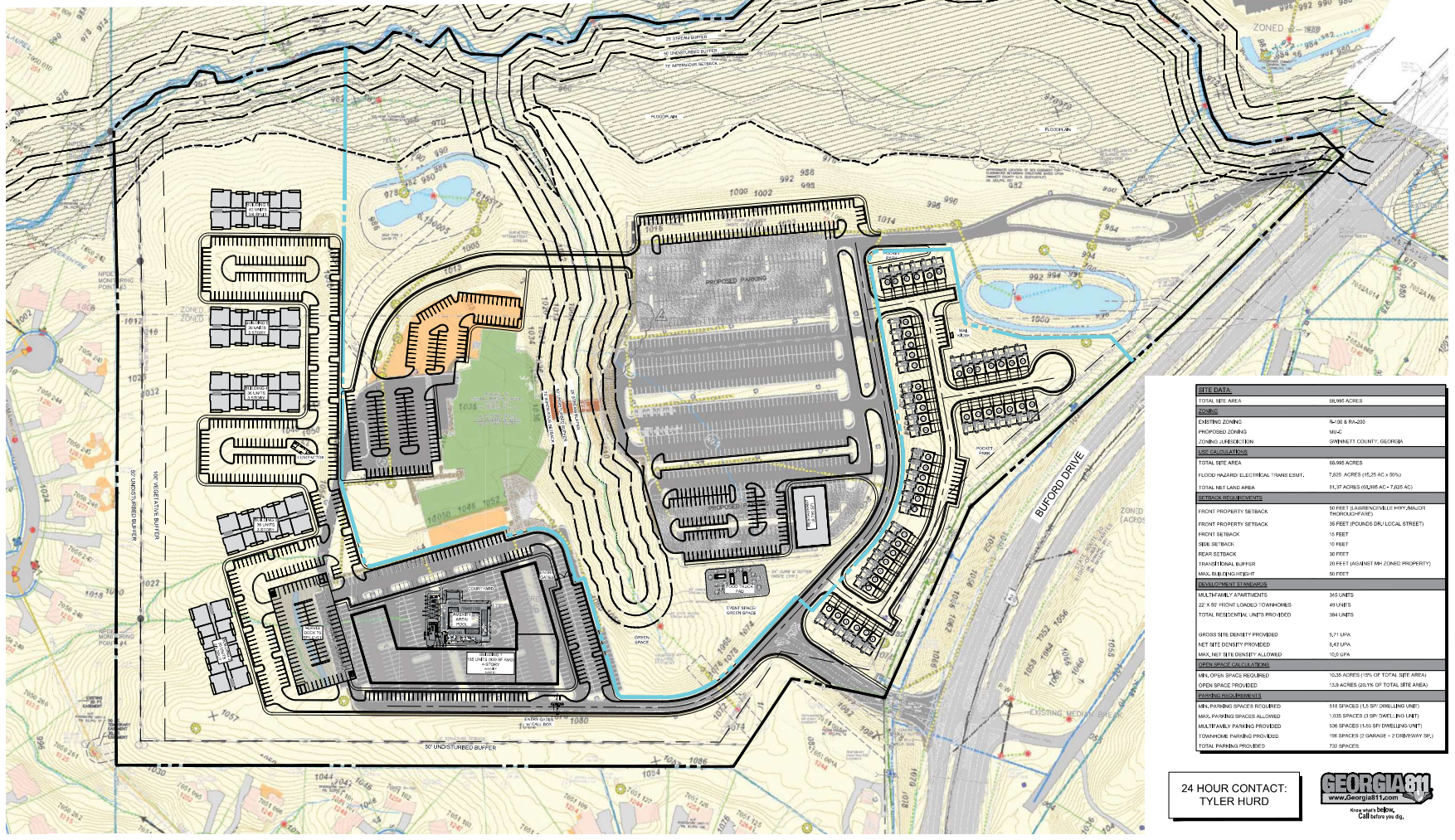
The information on this drawing was prepared by the Professional Engineer, Architect, or Professional Land Surveyor named on this drawing. It is the responsibility of the user of this drawing to verify the accuracy of the information and to obtain all necessary permits. The user of this drawing is advised that the information on this drawing is not to be used for any other purpose without the written consent of the Professional Engineer, Architect, or Professional Land Surveyor named on this drawing.



SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
NOT TO SCALE



SITE DATA	
TOTAL SITE AREA	64.94 ACRES
ZONING	R-10 & RA-200
EXISTING ZONING	MUC
PROPOSED ZONING	MUC
ZONING JURISDICTION	WINNETT COUNTY, GEORGIA
TOTAL SITE DATA	
TOTAL SITE AREA	64.94 ACRES
FLOOD HAZARD ELECTRICAL TRANSFER	7,835 ACRES (15.3% AC - 100%)
TOTAL NET LAND AREA	61.37 ACRES (94.5% AC - 74.6% AC)
SETBACK REQUIREMENTS	
FRONT PROPERTY SETBACK	30 FEET (LAWRENCEVILLE HIGHWAY/DRIVE/THRUROADWAY)
FRONT SETBACK	35 FEET (POUNDS DR./LOCAL STREET)
FRONT SETBACK	15 FEET
REAR SETBACK	10 FEET
FRONTAL BUFFER	20 FEET (ADJACENT RM-ZONED PROPERTY)
MAX. BUILDING HEIGHT	5 FEET
MULTIFAMILY APARTMENTS	
MULTIFAMILY APARTMENTS	345 UNITS
22 X 30 FRONT LOADED TOWNHOMES	49 UNITS
TOTAL RESIDENTIAL UNITS PROVIDED	394 UNITS
GROSS SITE DENSITY PROVIDED	
NET SITE DENSITY PROVIDED	5.7 UPA
MAX. NET SITE DENSITY ALLOWED	6.47 UPA
MAX. NET SITE DENSITY ALLOWED	10.0 UPA
MIN. OPEN SPACE PROVIDED	
MIN. OPEN SPACE PROVIDED	13.5 ACRES (20.7% OF TOTAL SITE AREA)
OPEN SPACE PROVIDED	13.5 ACRES (20.7% OF TOTAL SITE AREA)
PARKING REQUIREMENTS	
MIN. PARKING SPACES REQUIRED	518 SPACES (1.5 SP/ DWELLING UNIT)
MIN. PARKING SPACES ALLOWED	1,000 SPACES (3.0 SP/ DWELLING UNIT)
MULTIFAMILY PARKING PROVIDED	536 SPACES (1.5 SP/ DWELLING UNIT)
LOANHOLE PARKING PROVIDED	196 SPACES (2 GARAGE + 2 DRIVEWAY SP/ 230 SPACES)
TOTAL PARKING PROVIDED	732 SPACES

24 HOUR CONTACT:
TYLER HURD



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Planners & Engineers Collaborative+
Landscape Architecture - Civil Engineering
Architecture - Surveying & Construction - Interior Design
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT
12 STONE CHURCH
A MASTER PLANNED RESIDENTIAL DEVELOPMENT
AT
1322 BUFORD DRIVE
LAWRENCEVILLE, GA 30043
CITY OF LAWRENCEVILLE/
WINNETT COUNTY JURISDICTION

FOR
WOOD PARTNERS

MUNICIPALITY PROJECT #

REVISIONS			
NO.	DATE	BY	DESCRIPTION

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 000059389 EXP. 10/28/2021

MASTER PLAN
0 50 100 200 300

SCALE: 1" = 100'
DATE: 08/01/2022
PROJECT: 21247.00A



Planned Bicycle and Pedestrian Facilities

Sidewalks will be provided along the internal street network and along street frontage of the proposed development to promote external connectivity via pedestrian facilities. Trails will be considered where possible internal to the development.

Potential Pedestrian and Bicycle Destinations

Potential pedestrian and bicycle destinations in the vicinity of the proposed development include the following:

- Collins Hill Park

Planned Transit Facilities

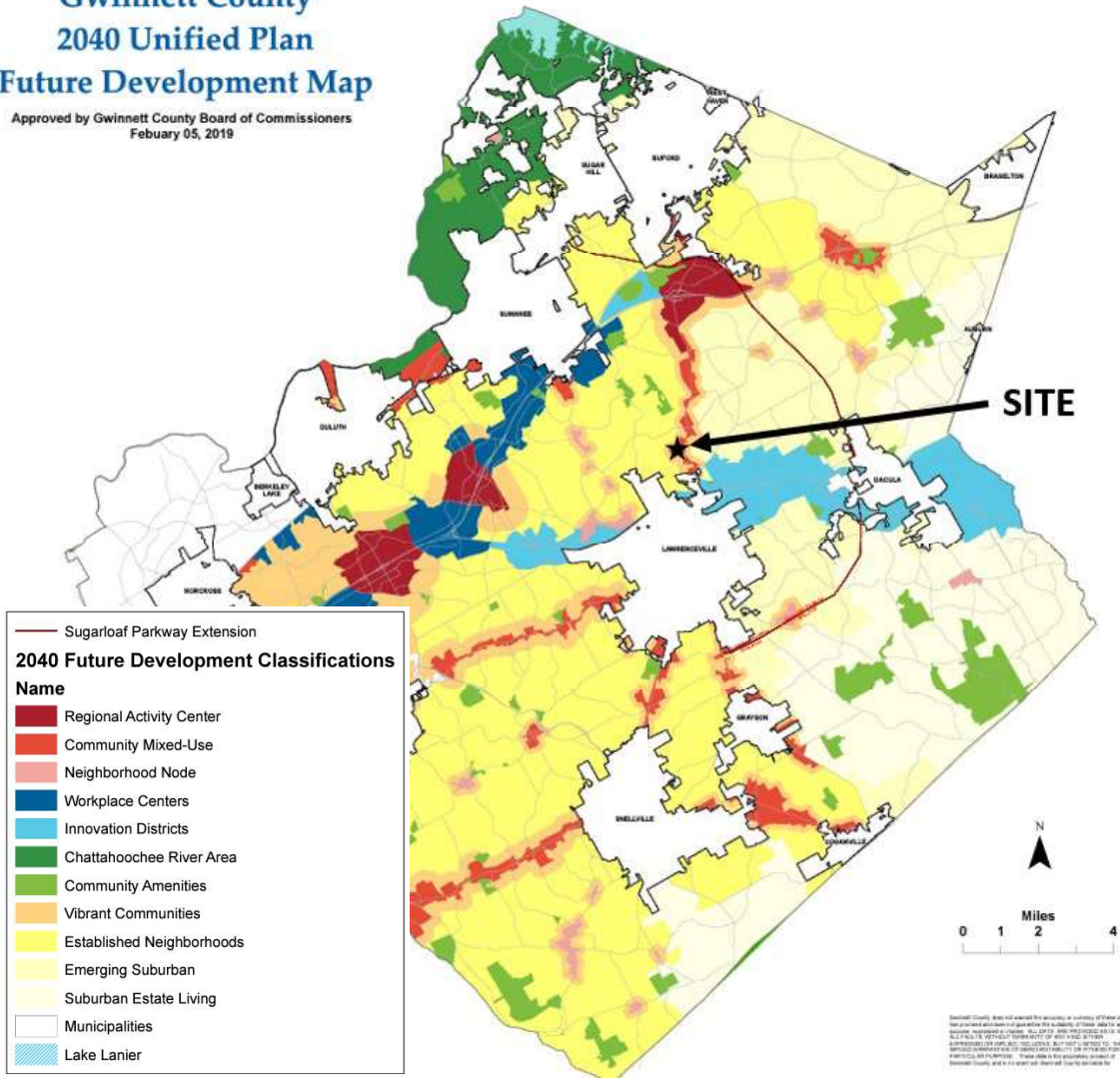
There is no existing or planned public transit service near the proposed development.

Consistency with Adopted Comprehensive Plan

The property includes 68.995 acres of land. The site is currently zoned as Single-Family Residence District (R-100) and Agriculture-Residence District (RA-200) is requesting a rezoning to Community Mixed-Use District (MU-C). According to Unified Growth Policy Map the proposed development falls under Established Suburbs land use area. The future land use designated by Gwinnett County is Community Mixed-Use Center (2040 Future Development Map) and is shown in the graphic below. The land use vision and goals of Gwinnett County are to coordinate infrastructure expansion with land use to encourage the expansion of infrastructure networks that are guided by the future development map.

The proposed mixed-use development is consistent with the land use vision and goals since the proposed development consists of residential and retail. The proposed development will honor the current aquatic survey regulations with their subcontracted environmental provider.

**Gwinnett County
2040 Unified Plan
Future Development Map**
Approved by Gwinnett County Board of Commissioners
February 05, 2019



Future Land Use Map

Future Land Use Map Zoning	Community Mixed-Use
Land Use Vision and Goals for Gwinnett County	The land use vision and goal are to coordinate infrastructure expansion with land use to encourage the expansion of infrastructure networks
Relation to Existing Land Use Plans	The proposed mixed-use development is consistent with the land use vision and goals since the proposed development consists of residential and retail

The proposed mixed-use development is consistent with the land use vision and goals listed above.

Project Phasing

This project has been evaluated for the complete build-out of the development in 2024.

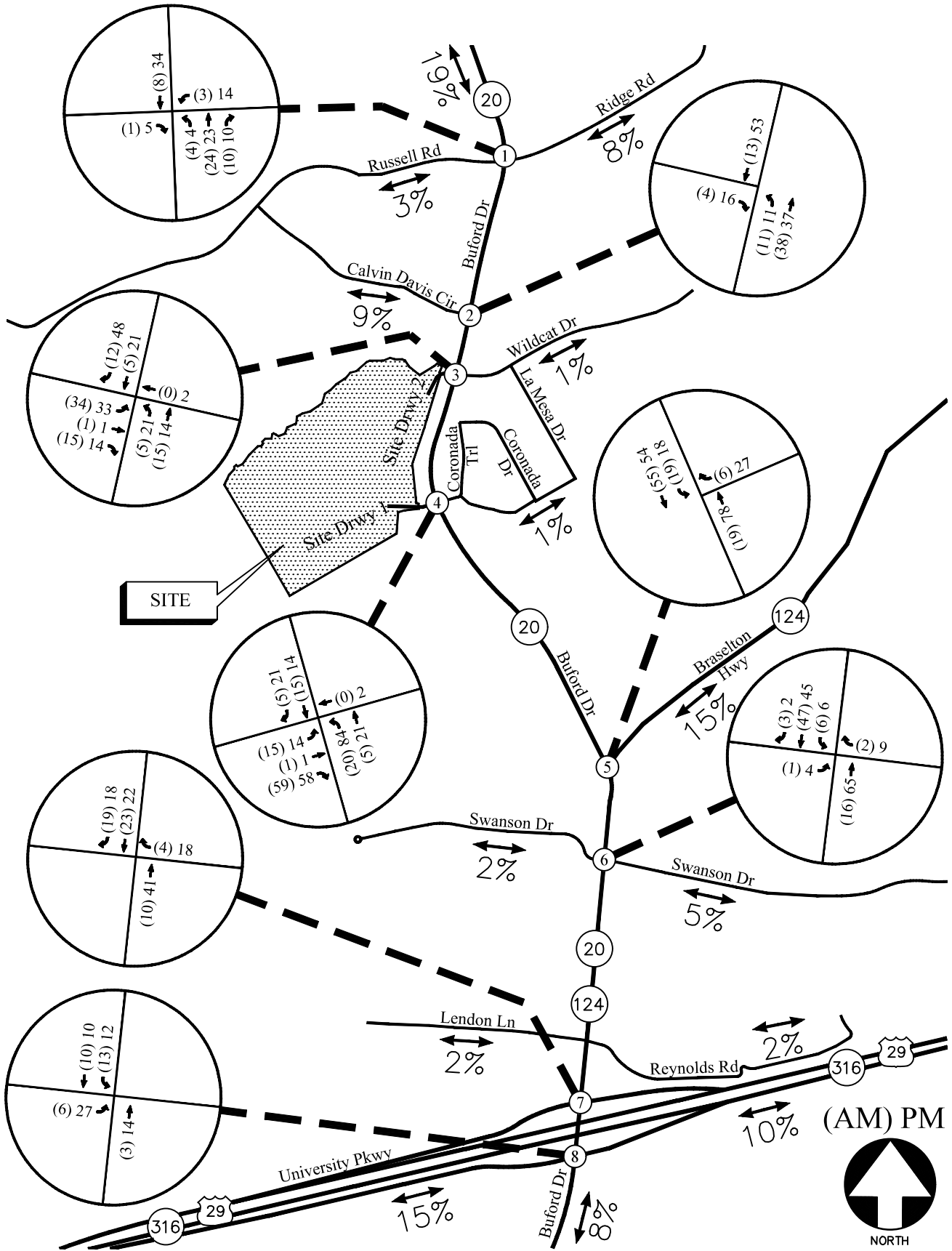
Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 11th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Uses: 215 – *Single Family Attached Housing*, 220 – *Multifamily Housing (Low-Rise) - Not Close to Rail Transit*, 221 – *Multifamily Housing (Mid-Rise) - Not Close to Rail Transit* and 930 – *Fast Casual Restaurant*. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION								
Land Use	Size	AM Peak Hour			PM Peak Hour		24-Hour	
		Enter	Exit	Total	Enter	Exit	Total	2-way
ITE 215 – Single-Family Attached Housing	49 Units	6	14	20	14	11	25	323
Mixed-Use Reduction		0	0	0	-1	-1	-2	-12
ITE 220 – Multifamily Housing (Low-Rise)	180 Units	19	60	79	62	36	98	1,229
Mixed-Use Reduction		-1	-1	-2	-4	-4	-8	-27
ITE 221 – Multifamily Housing (Mid-Rise)	165 Units	14	47	61	39	26	65	741
Mixed-Use Reduction		0	0	0	-3	-2	-5	-46
ITE 930 – Fast Casual Restaurant	8,750 sf	6	7	13	77	64	141	850
Mixed-Use Reduction		-1	-1	-2	-7	-8	-15	-85
Total Trips (without Reductions)		45	128	173	192	137	329	3,143
New External Trips (with Reductions)		43	126	169	177	122	299	2,973

Trip Distribution

The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of GDOT ADT volumes and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5.



OUTER LEG TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES

FIGURE 5
A&R Engineering Inc.

Future 2024 Traffic Analysis

The future 2024 traffic operations are analyzed for the “Build” and “No-Build” conditions. This provides a basis of reference for determining both the contribution of the site to overall traffic conditions and the additional improvements needed to provide sufficient site access and capacity for passing traffic. Note that survey and construction drawings would be needed to verify the feasibility and extent of additional right-of-way required for any recommended improvements.

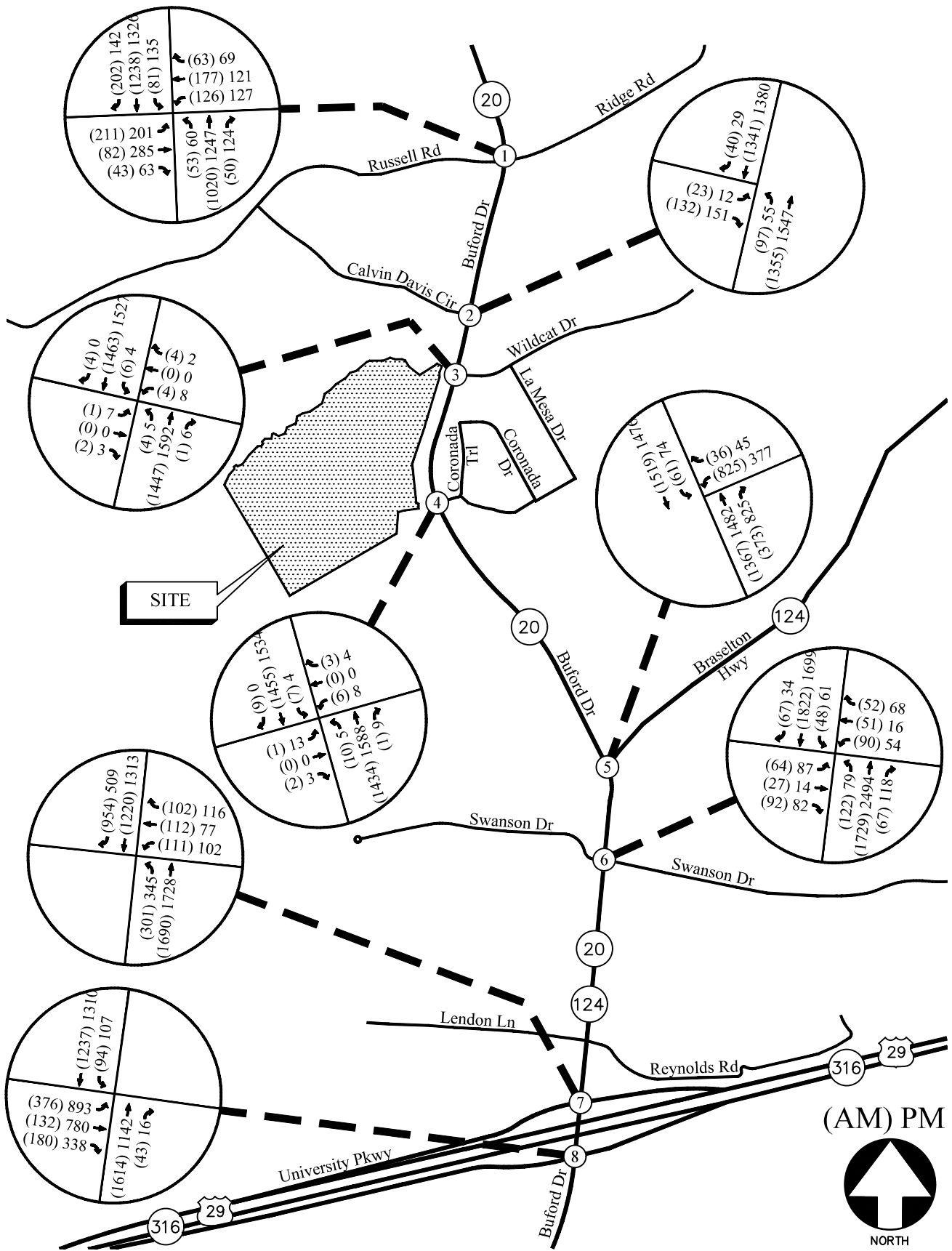
Improvements that are identified as “System Improvements” address deficiencies that are found within the existing road network prior to any impacts from the proposed development’s added traffic. Improvements that are identified as “Site Mitigation Improvements” address further impacts that are a result of the proposed development’s added traffic.

Future “No-Build” Conditions

The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth and due to other planned developments in the area. The Future “No-Build” volumes consist of the existing traffic volumes (Figure 2) plus increases for annual growth of traffic and traffic from other planned developments.

Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last three (2017-2019) years revealed growth of approximately 1.7% in the area. This growth factor was applied to the existing traffic volumes to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” volumes on the roadway are shown in Figure 6.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 6

A&R Engineering Inc.

Planned and Programmed Improvements in Study Area

The following improvements have been identified in the Regional Transportation Plan (Plan 2040), GDOT TransPi, and/or the local comprehensive transportation plan. These improvements are within the vicinity of the proposed development

TABLE 5 – PLANNED AND PROGRAMMED IMPROVEMENTS

Item #	Project Name	From / To Points	Sponsor	GDOT PI #	ARC ID #	Design FY	ROW / UTL FY	CST FY
1	SR 20 (Buford Dr): Widening (4 lanes to 6 lanes)	From SR 124 (Braselton Highway) to Hurricane Shoals Road	GDOT	0013974	-		2026-2040	
2	SR 124 (Braselton Highway): Widening (2 lanes to 4 lanes)	From SR 20 (Buford Drive) to Old Peachtree Road	GDOT	0014925	-		2031-2040	

GDOT planned improvement projects (PI 0013974) and (PI 0014925) were identified as a programmed improvement projects that are projected to be completed in 2040. Since the proposed development is planned to be completed in 2024, the improvement project will not be included in the traffic analysis.

Future “No-Build” Traffic Operations

The future “No-Build” traffic operations were analyzed using the volumes in Figure 6 and the results are shown in Table 6.

TABLE 6 – FUTURE “NO-BUILD” INTERSECTION OPERATIONS

Intersection		No Build Condition: LOS (Delay)			
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	<u>SR 20 (Buford Drive) @ Russell Rd/ Ridge Rd</u>	D (42.0)	D (48.8)	C (33.8)	D (39.1)
	-Eastbound Approach	E (77.8)	F (80.2)	E (76.5)	E (76.9)
	-Westbound Approach	F (83.3)	F (86.9)	E (72.0)	E (71.9)
	-Northbound Approach	C (30.6)	D (39.6)	C (22.3)	C (29.0)
	-Southbound Approach	C (32.7)	D (38.8)	C (23.7)	C (28.5)
2	<u>SR 20 (Buford Drive) @ Calvin Davis Cir</u>				
	-Eastbound Approach	F (*)	D (27.9)	F (110.6)	E (40.6)
	-Northbound Approach	C (15.6)	B (14.1)	C (15.6)	B (14.1)
3	<u>SR 20 (Buford Drive) @ Wildcat Dr</u>				
	-Eastbound Approach	D (29.7)	E (44.6)	D (29.7)	E (44.6)
	-Westbound Approach	D (30.9)	F (50.9)	D (30.9)	F (50.9)
	-Northbound Approach	B (14.5)	B (14.2)	B (14.5)	B (14.2)
	-Southbound Approach	B (14.4)	B (14.8)	B (14.4)	B (14.8)
4	<u>SR 20 (Buford Drive) @ Coronada Trail</u>				
	-Eastbound Approach	D (29.8)	F (53.1)	D (29.8)	F (53.1)
	-Westbound Approach	E (46.0)	E (47.1)	E (46.0)	E (47.1)
	-Northbound Approach	B (14.6)	B (14.1)	B (14.6)	B (14.1)
	-Southbound Approach	B (14.3)	B (14.6)	B (14.3)	B (14.6)
5	<u>SR 20 (Buford Drive) @ SR 124 (Braselton)</u>				

	Hwy) -Westbound Approach -Northbound Approach -Southbound Approach	B (19.2) D (52.1) A (2.5) B (15.9)	A (9.6) D (53.4) A (0.6) A (6.4)	B (19.2) D (52.1) A (2.5) B (15.9)	A (9.6) D (53.4) A (0.6) A (6.4)
6	SR 20 (Buford Drive) @ Swanson Dr -Eastbound Approach -Westbound Approach -Northbound Approach -Southbound Approach	B (10.5) D (45.1) D (47.5) B (12.1) A (1.9)	B (14.3) D (48.0) D (44.2) B (18.2) A (2.8)	B (10.5) D (45.1) D (47.5) B (12.1) A (1.9)	B (14.3) D (48.0) D (44.2) B (18.2) A (2.8)
7	SR 20 (Buford Drive) @ SR 316 (University Pkwy) WB Ramps -Westbound Approach -Northbound Approach -Southbound Approach	B (14.4) D (52.3) B (15.3) A (5.9)	B (10.1) D (52.4) A (8.3) A (7.3)	B (14.4) D (52.3) B (15.3) A (5.9)	B (10.1) D (52.4) A (8.3) A (7.3)
8	SR 20 (Buford Drive) @ SR 316 (University Pkwy) EB Ramps -Westbound Approach -Northbound Approach -Southbound Approach	B (12.2) D (46.0) A (8.4) A (4.0)	B (19.5) C (32.1) B (19.6) A (4.5)	B (12.2) D (46.0) A (8.4) A (4.0)	B (19.5) C (32.1) B (19.6) A (4.5)

* Delay exceeds 300 seconds

The results of future “No-Build” traffic operations indicate that the signalized study intersections will operate at an overall level of service “D” or better in AM and PM peak hours. The signalized intersection SR 20 (Buford Drive) at Russell Rd/ Ridge Rd eastbound and westbound approaches will operate at a level of service “F” in AM and PM peak hours.

The following (unsignalized) intersections will operate at a level of service “F” in AM and/or PM peak hour for the stop-controlled approaches:

- Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle
- Intersection 3: SR 20 (Buford Drive) at Wildcat Drive
- Intersection 4: SR 20 (Buford Drive) at Coronada Trail

Recommended System Improvements

The following are system improvements that were identified from the “No-Build” condition analysis.

Intersection 1: SR 20 (Buford Drive) at Russell Rd/ Ridge Rd

- Installation of a westbound left turn lane

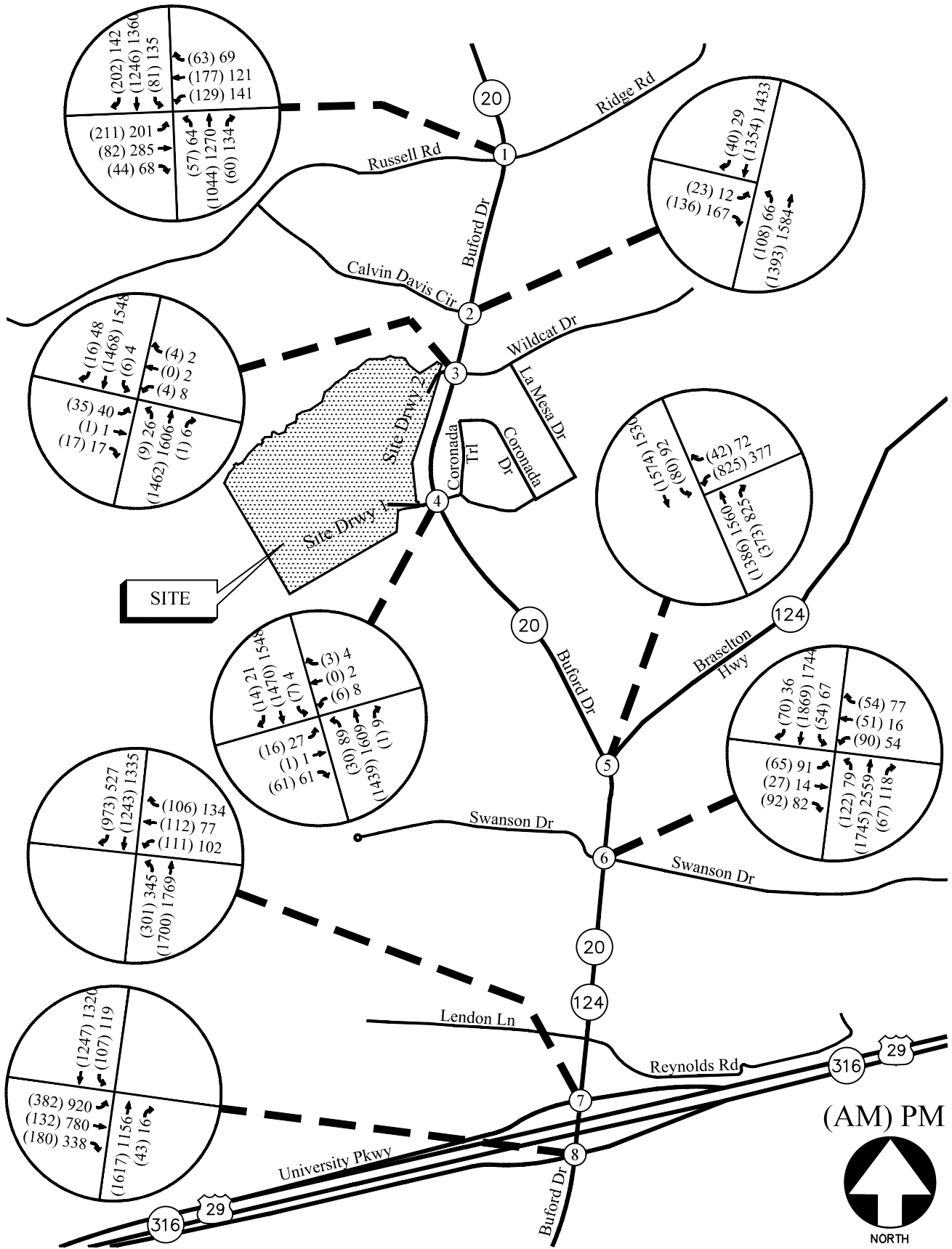
Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle

- Installation of an eastbound right turn lane

After the recommended system improvements are implemented, the signalized intersection SR 20 (Buford Drive) at Russell Road/Ridge Road approaches will operate at LOS “E” in both the AM and PM peak hours. The intersection of SR 20 (Buford Drive) at Calvin Davis Circle will still operate at a LOS “F” in the AM peak hours with a lower delay. No other improvements are recommended at the intersections of SR 20 (Buford Drive) at Wildcat Drive and SR 20 (Buford Drive) at Coronada Trail as traffic signal does not appear to be warranted by the MUTCD.

Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) were added to base traffic volumes (Figure 6) to calculate the future traffic volumes after the construction of the development. These total future traffic volumes are shown in Figure 7.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 7

A&R Engineering Inc.

Future “Build” Traffic Operations

The future “Build” traffic operations were analyzed using the volumes in Figure 7. The results of the future “Build” traffic operations analysis are shown in Table 7.

TABLE 7 – FUTURE “BUILD” INTERSECTION OPERATIONS					
Intersection		Build Condition: LOS (Delay)			
		NO IMPROVEMENTS		SYSTEM IMPROVEMENTS	
		AM Peak	PM Peak	AM Peak	PM Peak
1	SR 20 (Buford Drive) @ Russell Rd/ Ridge Rd	D (42.5)	D (50.8)	C (33.8)	D (40.4)
	-Eastbound Approach	E (77.7)	F (86.9)	E (75.7)	E (78.5)
	-Westbound Approach	F (83.8)	F (95.3)	E (71.4)	E (70.8)
	-Northbound Approach	C (31.3)	D (39.4)	C (22.5)	C (30.4)
	-Southbound Approach	C (33.2)	D (39.7)	C (23.9)	C (30.3)
2	SR 20 (Buford Drive) @ Calvin Davis Cir				
	-Eastbound Approach	F (*)	E (40.4)	F (124.2)	E (48.9)
	-Northbound Approach	C (16.2)	B (14.9)	C (16.2)	B (14.9)
3	SR 20 (Buford Drive) @ Wildcat Dr				
	-Eastbound Approach	F (81.7)	F (93.3)	F (81.7)	F (93.3)
	-Westbound Approach	D (32.9)	F (65.5)	D (32.9)	F (65.5)
	-Northbound Approach	B (14.7)	B (15.0)	B (14.7)	B (15.0)
	-Southbound Approach	B (14.5)	B (14.9)	B (14.5)	B (14.9)
4	SR 20 (Buford Drive) @ Coronada Trail				
	-Eastbound Approach	D (33.5)	F (56.2)	D (33.5)	F (56.2)
	-Westbound Approach	F (55.8)	F (99.6)	F (55.8)	F (99.6)
	-Northbound Approach	C (15.4)	C (16.9)	C (15.4)	C (16.9)
	-Southbound Approach	B (14.3)	B (14.8)	B (14.3)	B (14.8)
5	SR 20 (Buford Drive) @ SR 124 (Braselton Hwy)				
	-Westbound Approach	B (19.9)	A (9.9)	B (19.9)	A (9.9)
	-Northbound Approach	D (54.4)	D (53.1)	D (54.4)	D (53.1)
	-Southbound Approach	A (2.7)	A (0.6)	A (2.7)	A (0.6)
		B (16.4)	A (7.0)	B (16.4)	A (7.0)
6	SR 20 (Buford Drive) @ Swanson Dr				
	-Eastbound Approach	B (10.6)	B (15.6)	B (10.6)	B (15.6)
	-Westbound Approach	D (45.0)	D (47.7)	D (45.0)	D (47.7)
	-Northbound Approach	D (47.4)	D (43.8)	D (47.4)	D (43.8)
	-Southbound Approach	B (12.4)	C (20.2)	B (12.4)	C (20.2)
		A (2.0)	A (2.0)	A (3.2)	
7	SR 20 (Buford Drive) @ SR 316 (University Pkwy) WB Ramps				
	-Westbound Approach	B (14.3)	B (10.0)	B (14.3)	B (10.0)
	-Northbound Approach	D (52.3)	D (52.4)	D (52.3)	D (52.4)
	-Southbound Approach	B (15.3)	A (8.1)	B (15.3)	A (8.1)
		A (5.9)	A (7.3)	A (5.9)	A (7.3)
8	SR 20 (Buford Drive) @ SR 316 (University Pkwy) EB Ramps				
	-Westbound Approach	B (12.5)	B (19.7)	B (12.5)	B (19.7)
	-Northbound Approach	D (45.9)	C (31.9)	D (45.9)	C (31.9)
	-Southbound Approach	A (8.7)	C (20.3)	A (8.7)	C (20.3)
		A (4.4)	A (4.9)	A (4.4)	A (4.9)

* Delay exceeds 300 seconds

The results of future “Build” traffic operations indicate that the signalized study intersections will operate at an overall level of service “D” or better in AM and PM peak hours. The signalized intersection SR 20 (Buford Drive) at Russell Rd/ Ridge Rd eastbound and westbound approaches will operate at a level of service “F” in AM and PM peak hours.







The following (unsignalized) intersections are operating at a level of service “F” in AM and/or PM peak hour for the stop-controlled approaches:

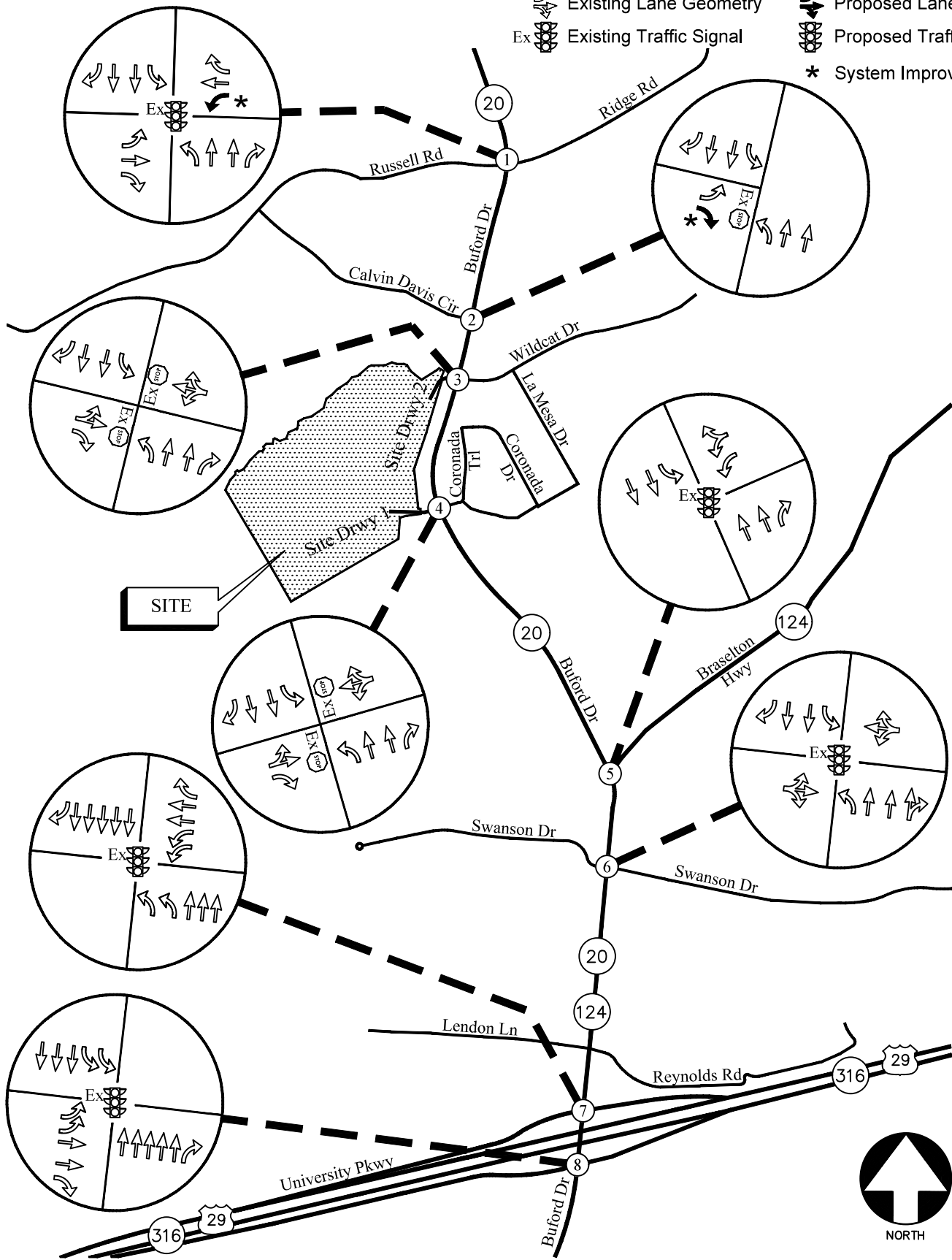
- Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle
- Intersection 3: SR 20 (Buford Drive) at Wildcat Drive
- Intersection 4: SR 20 (Buford Drive) at Coronada Trail

After the recommended system improvements are implemented, the signalized intersection SR 20 (Buford Drive) at Russell Road/Ridge Road approaches will operate at LOS “E” in both the AM and PM peak hours. The intersection of SR 20 (Buford Drive) at Calvin Davis Circle will still operate at a LOS “F” in the AM peak hours with a lower delay. No other improvements are recommended at the intersections of SR 20 (Buford Drive) at Wildcat Drive and SR 20 (Buford Drive) at Coronada Trail as traffic signal does not appear to be warranted by the MUTCD.

Recommendations for future traffic control and lane geometry are shown in Figure 8.

LEGEND

- Ex  Existing Signed Approach
-  Existing Lane Geometry
- Ex  Existing Traffic Signal
-  Proposed Signed Approach
-  Proposed Lane Geometry
-  Proposed Traffic Signal
- * System Improvement



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 8

A&R Engineering Inc.

CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the proposed mixed-use development that will be located to west of the intersection of SR 20 (Buford Drive) and Coronada Trail in Gwinnett County.

The development proposes full access at the following locations:

- Site Driveway 1: Existing full access driveway on SR 20 (Buford Drive) via Coronada Trail
- Site Driveway 2: Existing full access driveway on SR 20 (Buford Drive) via Wildcat Drive

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

1. SR 20 (Buford Drive) and Wildcat Drive/ 12 Stone Church's Northern Driveway
2. SR 20 (Buford Drive) and Coronada Trail/ 12 Stone Church's Southern Driveway
3. SR 20 (Buford Drive) and Russell Road/ Ridge Road
4. SR 20 (Buford Drive) and SR 124 (Braselton Highway)
5. SR 20 (Buford Drive) and Swanson Drive
6. SR 20 (Buford Drive) and Calvin Davis Circle
7. SR 20 (Buford Drive) and SR 316 (University Parkway) WB Ramps
8. SR 20 (Buford Drive) and SR 316 (University Parkway) EB Ramps

The analysis included the evaluation of Future operations for "No-Build" and "Build" conditions, both of which account for increases in annual growth of through traffic. The results of future "Build" traffic operations indicate that the signalized study intersections are operating at an overall level of service "D" or better in AM and PM peak hours. At the intersection of SR 20 (Buford Drive) at Russell Rd/ Ridge Rd, the eastbound and westbound approaches will operate at a level of service "F" in AM and PM peak hours.

The following unsignalized intersection approaches will operate at a level of service "F" in AM and/or PM peak hour:

- SR 20 (Buford Drive) at Calvin Davis Circle
- SR 20 (Buford Drive) at Wildcat Drive / Site Driveway
- SR 20 (Buford Drive) at Coronada Trail / Site Driveway

Recommended System Improvements

The following are system improvements that were identified from the "No-Build" condition analysis.

Intersection 1: SR 20 (Buford Drive) at Russell Rd/ Ridge Rd

- Installation of a westbound left turn lane

Intersection 2: SR 20 (Buford Drive) at Calvin Davis Circle

- Installation of an eastbound right turn lane

After the recommended system improvements are implemented, the signalized intersection SR 20 (Buford Drive) at Russell Road/Ridge Road approaches will operate at LOS "E" in both the AM and PM peak hours. The intersection of SR 20 (Buford Drive) at Calvin Davis Circle will still operate at a LOS "F" in the AM peak hours with a lower delay. No other improvements are recommended at the intersections of SR 20 (Buford Drive) at Wildcat Drive and SR 20 (Buford Drive) at Coronada Trail as traffic signal does not appear to be warranted by the MUTCD.

Appendix

Existing Intersection Traffic Counts	
Linear Regression of Daily Traffic.....	
Existing Intersection Analysis.....	
Future “No-Build” Intersection Analysis	
Future “No-Build” Intersection Analysis with Improvements	
Future “Build” Intersections Analysis	
Future “Build” Intersections Analysis with Improvements.....	
Traffic Volume Worksheets	

Existing Intersection Traffic Counts

A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ 12 Stone
Church's Northern Drwy - Wildcat Drive
7-9 am | 4-6 pm

File Name : 20220384
Site Code : 20220384
Start Date : 8/25/2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				12 Stone Church's Northern Drwy Eastbound				Wildcat Drive Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	1	256	0	257	1	297	1	299	0	0	0	0	1	0	0	1	557
07:15 AM	0	271	1	272	0	355	0	355	0	0	0	0	1	0	0	1	628
07:30 AM	1	304	2	307	1	448	1	450	0	0	0	0	1	0	1	2	759
07:45 AM	0	316	1	317	1	364	0	365	1	0	0	1	2	0	0	2	685
Total	2	1147	4	1153	3	1464	2	1469	1	0	0	1	5	0	1	6	2629
08:00 AM	1	325	0	326	2	327	1	330	0	0	1	1	2	0	1	3	660
08:15 AM	0	294	0	294	2	371	2	375	0	0	0	0	0	0	1	1	670
08:30 AM	1	352	1	354	1	346	1	348	0	0	0	0	1	0	1	2	704
08:45 AM	2	428	0	430	1	371	0	372	1	0	1	2	1	0	1	2	806
Total	4	1399	1	1404	6	1415	4	1425	1	0	2	3	4	0	4	8	2840
*** BREAK ***																	
04:00 PM	1	401	5	407	0	395	0	395	1	0	1	2	1	0	1	2	806
04:15 PM	1	354	2	357	1	360	0	361	0	0	1	1	1	0	1	2	721
04:30 PM	3	355	1	359	1	319	0	320	2	0	1	3	2	0	0	2	684
04:45 PM	0	384	0	384	0	395	0	395	1	0	0	1	3	0	0	3	783
Total	5	1494	8	1507	2	1469	0	1471	4	0	3	7	7	0	2	9	2994
05:00 PM	1	371	2	374	2	397	0	399	2	0	1	3	1	0	1	2	778
05:15 PM	1	430	3	434	1	366	0	367	2	0	1	3	2	0	1	3	807
05:30 PM	1	330	2	333	1	332	0	333	0	0	2	2	0	0	1	1	669
05:45 PM	2	341	2	345	0	325	1	326	1	0	1	2	4	0	0	4	677
Total	5	1472	9	1486	4	1420	1	1425	5	0	5	10	7	0	3	10	2931
Grand Total	16	5512	22	5550	15	5768	7	5790	11	0	10	21	23	0	10	33	11394
Apprch %	0.3	99.3	0.4		0.3	99.6	0.1		52.4	0	47.6		69.7	0	30.3		
Total %	0.1	48.4	0.2	48.7	0.1	50.6	0.1	50.8	0.1	0	0.1	0.2	0.2	0	0.1	0.3	
Cars & Buses	16	5294	21	5331	15	5531	7	5553	11	0	10	21	22	0	10	32	10937
% Cars & Buses	100	96	95.5	96.1	100	95.9	100	95.9	100	0	100	100	95.7	0	100	97	96
Trucks	0	218	1	219	0	237	0	237	0	0	0	0	1	0	0	1	457
% Trucks	0	4	4.5	3.9	0	4.1	0	4.1	0	0	0	0	4.3	0	0	3	4

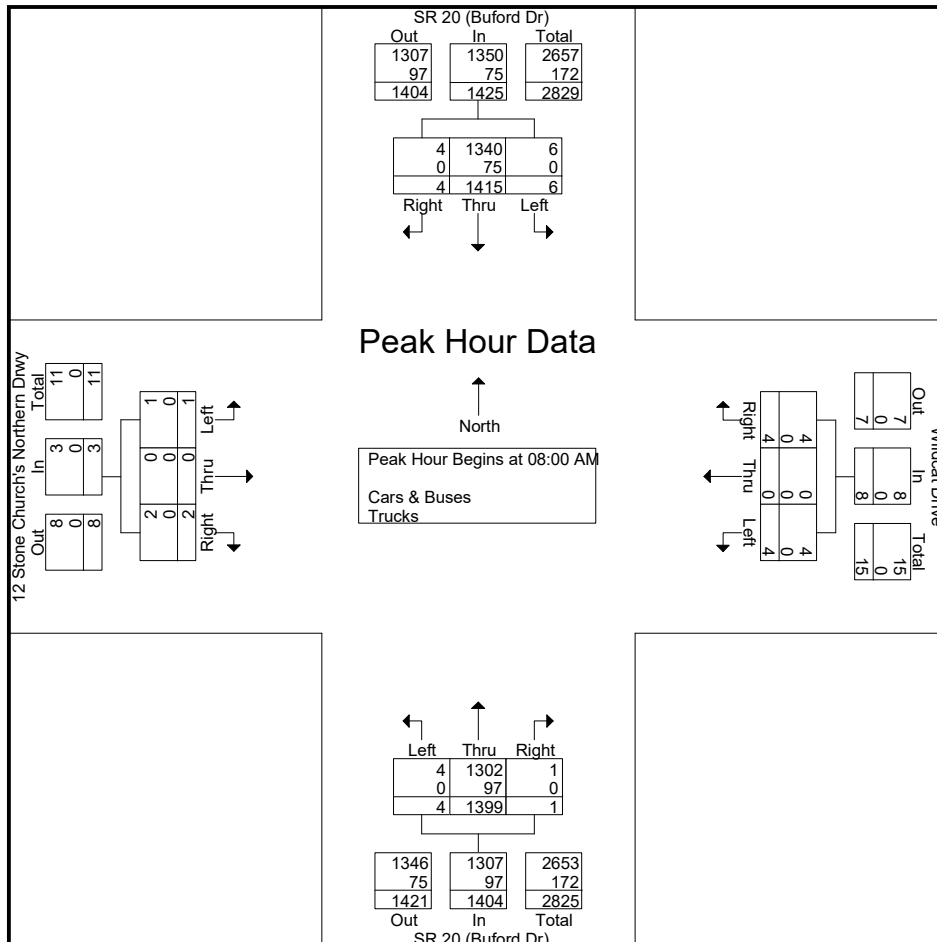
A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ 12 Stone
Church's Northern Drwy - Wildcat Drive
7-9 am | 4-6 pm

File Name : 20220384
Site Code : 20220384
Start Date : 8/25/2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				12 Stone Church's Northern Drwy Eastbound				Wildcat Drive Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	325	0	326	2	327	1	330	0	0	1	1	2	0	1	3	660
08:15 AM	0	294	0	294	2	371	2	375	0	0	0	0	0	0	1	1	670
08:30 AM	1	352	1	354	1	346	1	348	0	0	0	0	1	0	1	2	704
08:45 AM	2	428	0	430	1	371	0	372	1	0	1	2	1	0	1	2	806
Total Volume	4	1399	1	1404	6	1415	4	1425	1	0	2	3	4	0	4	8	2840
% App. Total	0.3	99.6	0.1		0.4	99.3	0.3		33.3	0	66.7		50	0	50		
PHF	.500	.817	.250	.816	.750	.954	.500	.950	.250	.000	.500	.375	.500	.000	1.00	.667	.881
Cars & Buses	4	1302	1	1307	6	1340	4	1350	1	0	2	3	4	0	4	8	2668
% Cars & Buses	100	93.1	100	93.1	100	94.7	100	94.7	100	0	100	100	100	0	100	100	93.9
Trucks	0	97	0	97	0	75	0	75	0	0	0	0	0	0	0	0	172
% Trucks	0	6.9	0	6.9	0	5.3	0	5.3	0	0	0	0	0	0	0	0	6.1



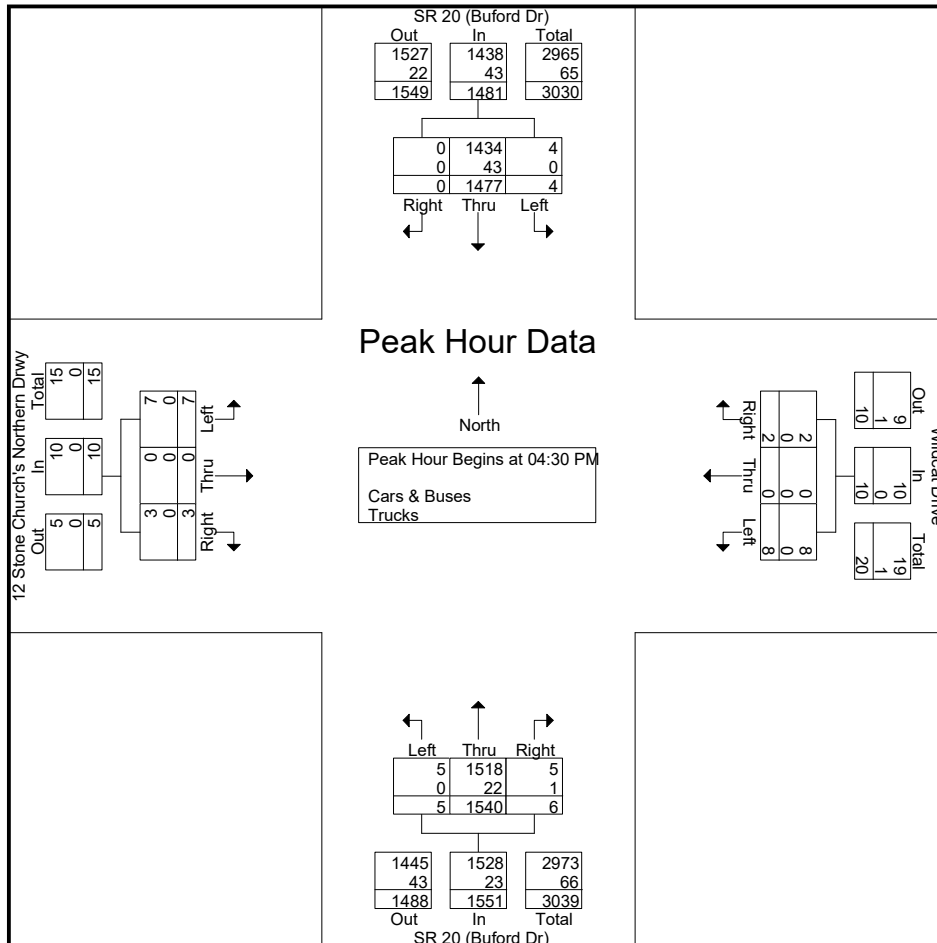
A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ 12 Stone
Church's Northern Drwy - Wildcat Drive
7-9 am | 4-6 pm

File Name : 20220384
Site Code : 20220384
Start Date : 8/25/2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				12 Stone Church's Northern Drwy Eastbound				Wildcat Drive Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	3	355	1	359	1	319	0	320	2	0	1	3	2	0	0	2	684
04:45 PM	0	384	0	384	0	395	0	395	1	0	0	1	3	0	0	3	783
05:00 PM	1	371	2	374	2	397	0	399	2	0	1	3	1	0	1	2	778
05:15 PM	1	430	3	434	1	366	0	367	2	0	1	3	2	0	1	3	807
Total Volume	5	1540	6	1551	4	1477	0	1481	7	0	3	10	8	0	2	10	3052
% App. Total	0.3	99.3	0.4		0.3	99.7	0		0.5	0	0.2		0.5	0	0.1		
PHF	.417	.895	.500	.893	.500	.930	.000	.928	.875	.000	.750	.833	.667	.000	.500	.833	.945
Cars & Buses	5	1518	5	1528	4	1434	0	1438	7	0	3	10	8	0	2	10	2986
% Cars & Buses	100	98.6	83.3	98.5	100	97.1	0	97.1	100	0	100	100	100	0	100	100	97.8
Trucks	0	22	1	23	0	43	0	43	0	0	0	0	0	0	0	0	66
% Trucks	0	1.4	16.7	1.5	0	2.9	0	2.9	0	0	0	0	0	0	0	0	2.2



A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta,GA 30067

TMC DATA
SR 20 (Buford Dr) @ Coronada Trail -
Church Southern Drwy
7-9 am | 4-6 pm

File Name : 20220385
Site Code : 20220385
Start Date : 08-25-2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Church Southern Drwy Eastbound				Coronada Trail Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	1	255	0	256	0	297	1	298	0	0	0	0	1	0	0	1	555
07:15 AM	0	271	0	271	0	356	0	356	0	0	0	0	1	0	0	1	628
07:30 AM	0	302	2	304	2	447	0	449	0	0	0	0	1	0	2	3	756
07:45 AM	0	316	0	316	3	363	0	366	1	0	0	1	2	0	0	2	685
Total	1	1144	2	1147	5	1463	1	1469	1	0	0	1	5	0	2	7	2624
08:00 AM	1	324	0	325	2	328	0	330	0	0	1	1	2	0	1	3	659
08:15 AM	0	291	0	291	5	364	2	371	0	0	0	0	0	0	1	1	663
08:30 AM	4	347	1	352	0	345	4	349	0	0	0	0	3	0	1	4	705
08:45 AM	5	425	0	430	0	370	3	373	1	0	1	2	1	0	0	1	806
Total	10	1387	1	1398	7	1407	9	1423	1	0	2	3	6	0	3	9	2833
*** BREAK ***																	
04:00 PM	1	400	5	406	0	397	0	397	1	0	1	2	1	0	1	2	807
04:15 PM	1	354	2	357	1	361	0	362	0	0	1	1	1	0	0	1	721
04:30 PM	2	355	1	358	1	321	0	322	5	0	1	6	2	0	0	2	688
04:45 PM	0	384	3	387	0	398	0	398	3	0	0	3	3	0	0	3	791
Total	4	1493	11	1508	2	1477	0	1479	9	0	3	12	7	0	1	8	3007
05:00 PM	1	370	2	373	2	397	0	399	3	0	1	4	1	0	1	2	778
05:15 PM	2	427	3	432	1	368	0	369	2	0	1	3	2	0	3	5	809
05:30 PM	1	329	2	332	3	331	0	334	0	0	2	2	0	0	1	1	669
05:45 PM	2	340	4	346	0	328	1	329	1	0	1	2	4	0	0	4	681
Total	6	1466	11	1483	6	1424	1	1431	6	0	5	11	7	0	5	12	2937
Grand Total	21	5490	25	5536	20	5771	11	5802	17	0	10	27	25	0	11	36	11401
Apprch %	0.4	99.2	0.5		0.3	99.5	0.2		63	0	37		69.4	0	30.6		
Total %	0.2	48.2	0.2	48.6	0.2	50.6	0.1	50.9	0.1	0	0.1	0.2	0.2	0	0.1	0.3	
Cars & Buses	21	5272	24	5317	20	5534	11	5565	17	0	10	27	24	0	11	35	10944
% Cars & Buses	100	96	96	96	100	95.9	100	95.9	100	0	100	100	96	0	100	97.2	96
Trucks	0	218	1	219	0	237	0	237	0	0	0	0	1	0	0	1	457
% Trucks	0	4	4	4	0	4.1	0	4.1	0	0	0	0	4	0	0	2.8	4

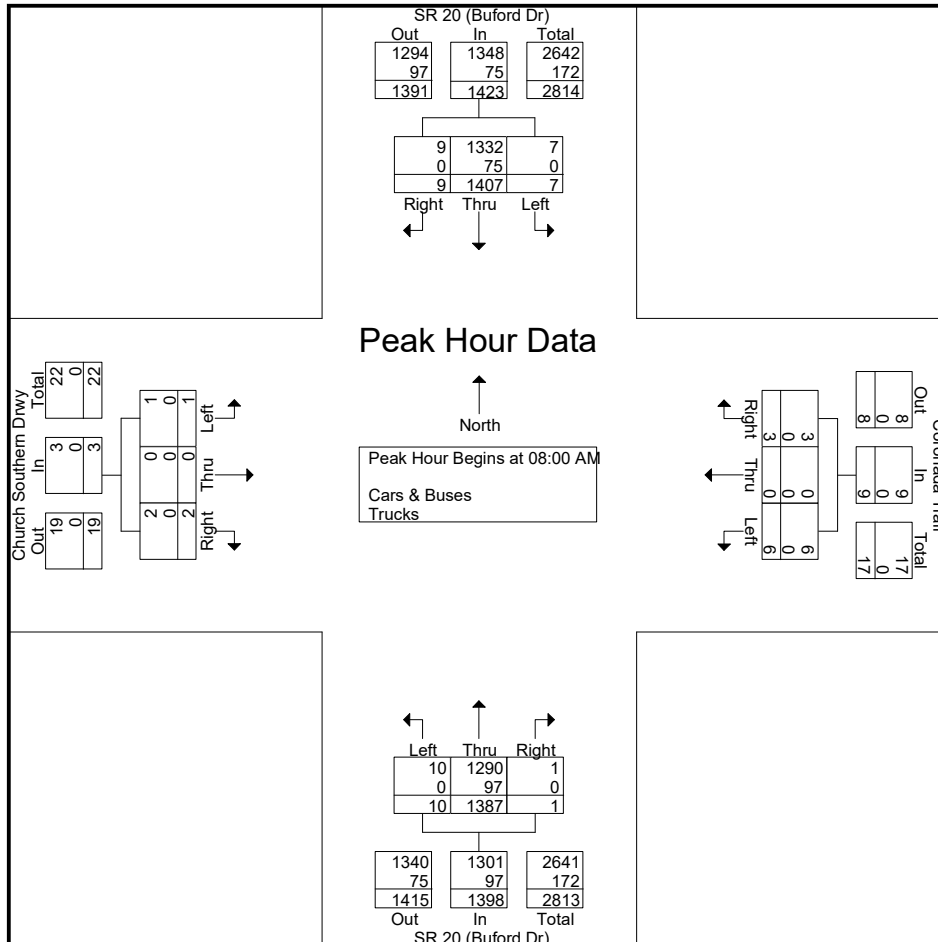
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ Coronada Trail -
Church Southern Drwy
7-9 am | 4-6 pm

File Name : 20220385
Site Code : 20220385
Start Date : 08-25-2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Church Southern Drwy Eastbound				Coronada Trail Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	324	0	325	2	328	0	330	0	0	1	1	2	0	1	3	659
08:15 AM	0	291	0	291	5	364	2	371	0	0	0	0	0	0	1	1	663
08:30 AM	4	347	1	352	0	345	4	349	0	0	0	0	3	0	1	4	705
08:45 AM	5	425	0	430	0	370	3	373	1	0	1	2	1	0	0	1	806
Total Volume	10	1387	1	1398	7	1407	9	1423	1	0	2	3	6	0	3	9	2833
% App. Total	0.7	99.2	0.1		0.5	98.9	0.6		33.3	0	66.7		66.7	0	33.3		
PHF	.500	.816	.250	.813	.350	.951	.563	.954	.250	.000	.500	.375	.500	.000	.750	.563	.879
Cars & Buses	10	1290	1	1301	7	1332	9	1348	1	0	2	3	6	0	3	9	2661
% Cars & Buses	100	93.0	100	93.1	100	94.7	100	94.7	100	0	100	100	100	0	100	100	93.9
Trucks	0	97	0	97	0	75	0	75	0	0	0	0	0	0	0	0	172
% Trucks	0	7.0	0	6.9	0	5.3	0	5.3	0	0	0	0	0	0	0	0	6.1



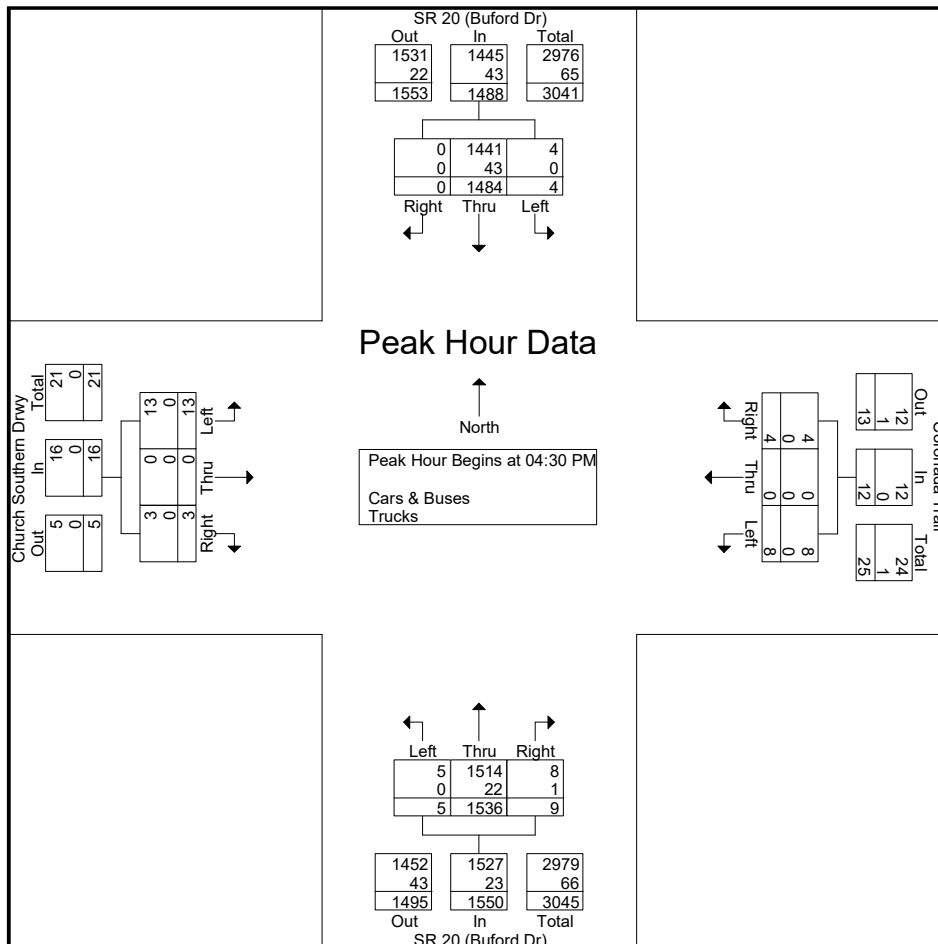
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ Coronada Trail -
Church Southern Drwy
7-9 am | 4-6 pm

File Name : 20220385
Site Code : 20220385
Start Date : 08-25-2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Church Southern Drwy Eastbound				Coronada Trail Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	355	1	358	1	321	0	322	5	0	1	6	2	0	0	2	688
04:45 PM	0	384	3	387	0	398	0	398	3	0	0	3	3	0	0	3	791
05:00 PM	1	370	2	373	2	397	0	399	3	0	1	4	1	0	1	2	778
05:15 PM	2	427	3	432	1	368	0	369	2	0	1	3	2	0	3	5	809
Total Volume	5	1536	9	1550	4	1484	0	1488	13	0	3	16	8	0	4	12	3066
% App. Total	0.3	99.1	0.6		0.3	99.7	0		81.2	0	18.8		66.7	0	33.3		
PHF	.625	.899	.750	.897	.500	.932	.000	.932	.650	.000	.750	.667	.667	.000	.333	.600	.947
Cars & Buses	5	1514	8	1527	4	1441	0	1445	13	0	3	16	8	0	4	12	3000
% Cars & Buses	100	98.6	88.9	98.5	100	97.1	0	97.1	100	0	100	100	100	0	100	100	97.8
Trucks	0	22	1	23	0	43	0	43	0	0	0	0	0	0	0	0	66
% Trucks	0	1.4	11.1	1.5	0	2.9	0	2.9	0	0	0	0	0	0	0	0	2.2



A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta,GA 30067

TMC DATA
SR 20 (Buford Dr) @ Russell Rd -
Ridge Rd
7-9 am | 4-6 pm

File Name : 20220386
Site Code : 20220386
Start Date : 08-25-2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Russell Rd Eastbound				Ridge Rd Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	3	212	8	223	5	276	12	293	11	8	3	22	27	27	14	68	606
07:15 AM	6	226	13	245	8	316	17	341	25	14	8	47	27	21	10	58	691
07:30 AM	6	223	9	238	10	382	27	419	15	8	3	26	39	37	29	105	788
07:45 AM	14	263	9	286	17	360	31	408	29	17	8	54	42	58	21	121	869
Total	29	924	39	992	40	1334	87	1461	80	47	22	149	135	143	74	352	2954
08:00 AM	20	269	11	300	19	258	27	304	49	17	15	81	20	46	18	84	769
08:15 AM	12	200	15	227	24	251	46	321	71	25	11	107	38	35	9	82	737
08:30 AM	5	254	13	272	18	328	91	437	55	20	8	83	22	32	13	67	859
08:45 AM	11	248	15	274	11	269	34	314	29	19	10	58	26	33	17	76	722
Total	48	971	54	1073	72	1106	198	1376	204	81	44	329	106	146	57	309	3087
*** BREAK ***																	
04:00 PM	15	312	31	358	37	351	25	413	32	44	17	93	41	19	15	75	939
04:15 PM	12	280	26	318	27	273	27	327	44	69	25	138	27	24	10	61	844
04:30 PM	13	287	22	322	36	273	37	346	43	57	10	110	37	28	14	79	857
04:45 PM	18	330	23	371	32	373	39	444	53	80	19	152	28	27	16	71	1038
Total	58	1209	102	1369	132	1270	128	1530	172	250	71	493	133	98	55	286	3678
05:00 PM	13	300	28	341	34	338	26	398	57	72	18	147	33	26	20	79	965
05:15 PM	14	289	47	350	29	298	35	362	41	67	14	122	25	36	17	78	912
05:30 PM	21	268	36	325	33	273	24	330	26	56	9	91	29	28	16	73	819
05:45 PM	20	257	32	309	30	293	38	361	37	55	18	110	35	28	15	78	858
Total	68	1114	143	1325	126	1202	123	1451	161	250	59	470	122	118	68	308	3554
Grand Total	203	4218	338	4759	370	4912	536	5818	617	628	196	1441	496	505	254	1255	13273
Apprch %	4.3	88.6	7.1		6.4	84.4	9.2		42.8	43.6	13.6		39.5	40.2	20.2		
Total %	1.5	31.8	2.5	35.9	2.8	37	4	43.8	4.6	4.7	1.5	10.9	3.7	3.8	1.9	9.5	
Cars & Buses	199	4022	333	4554	369	4699	535	5603	615	626	194	1435	489	504	253	1246	12838
% Cars & Buses	98	95.4	98.5	95.7	99.7	95.7	99.8	96.3	99.7	99.7	99	99.6	98.6	99.8	99.6	99.3	96.7
Trucks	4	196	5	205	1	213	1	215	2	2	2	6	7	1	1	9	435
% Trucks	2	4.6	1.5	4.3	0.3	4.3	0.2	3.7	0.3	0.3	1	0.4	1.4	0.2	0.4	0.7	3.3

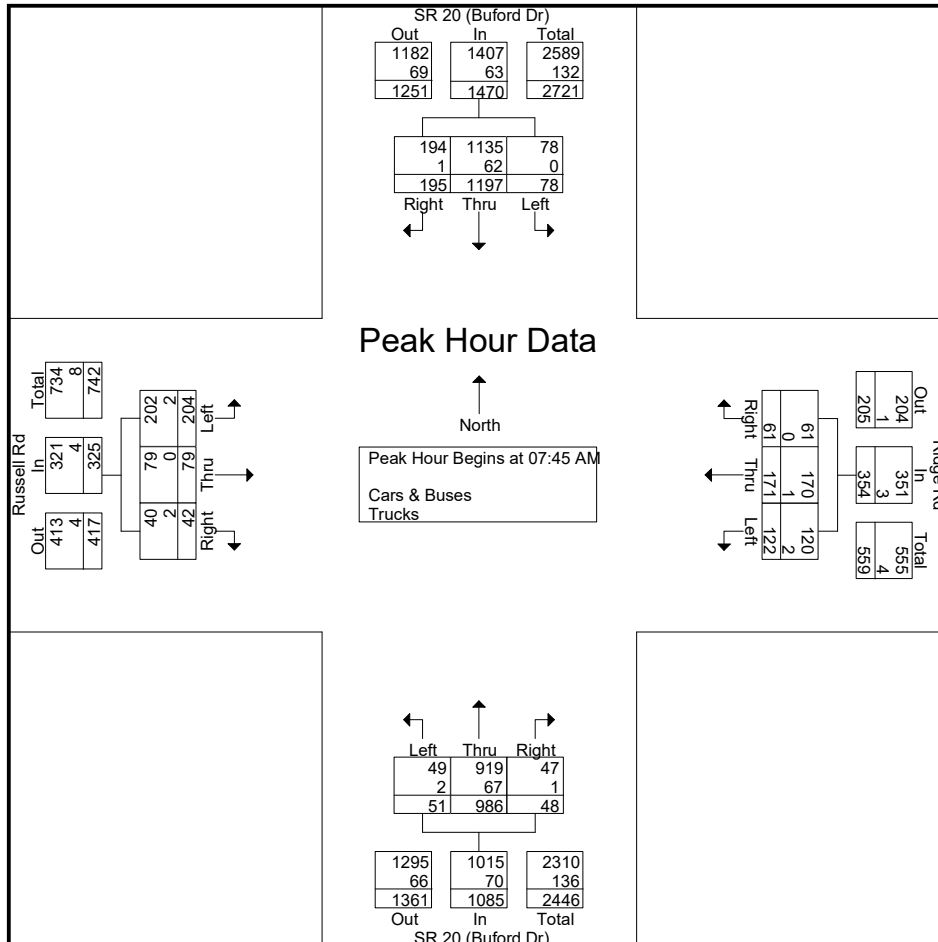
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ Russell Rd -
Ridge Rd
7-9 am | 4-6 pm

File Name : 20220386
Site Code : 20220386
Start Date : 08-25-2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Russell Rd Eastbound				Ridge Rd Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	14	263	9	286	17	360	31	408	29	17	8	54	42	58	21	121	869
08:00 AM	20	269	11	300	19	258	27	304	49	17	15	81	20	46	18	84	769
08:15 AM	12	200	15	227	24	251	46	321	71	25	11	107	38	35	9	82	737
08:30 AM	5	254	13	272	18	328	91	437	55	20	8	83	22	32	13	67	859
Total Volume	51	986	48	1085	78	1197	195	1470	204	79	42	325	122	171	61	354	3234
% App. Total	4.7	90.9	4.4		5.3	81.4	13.3		62.8	24.3	12.9		34.5	48.3	17.2		
PHF	.638	.916	.800	.904	.813	.831	.536	.841	.718	.790	.700	.759	.726	.737	.726	.731	.930
Cars & Buses	49	919	47	1015	78	1135	194	1407	202	79	40	321	120	170	61	351	3094
% Cars & Buses	96.1	93.2	97.9	93.5	100	94.8	99.5	95.7	99.0	100	95.2	98.8	98.4	99.4	100	99.2	95.7
Trucks	2	67	1	70	0	62	1	63	2	0	2	4	2	1	0	3	140
% Trucks	3.9	6.8	2.1	6.5	0	5.2	0.5	4.3	1.0	0	4.8	1.2	1.6	0.6	0	0.8	4.3



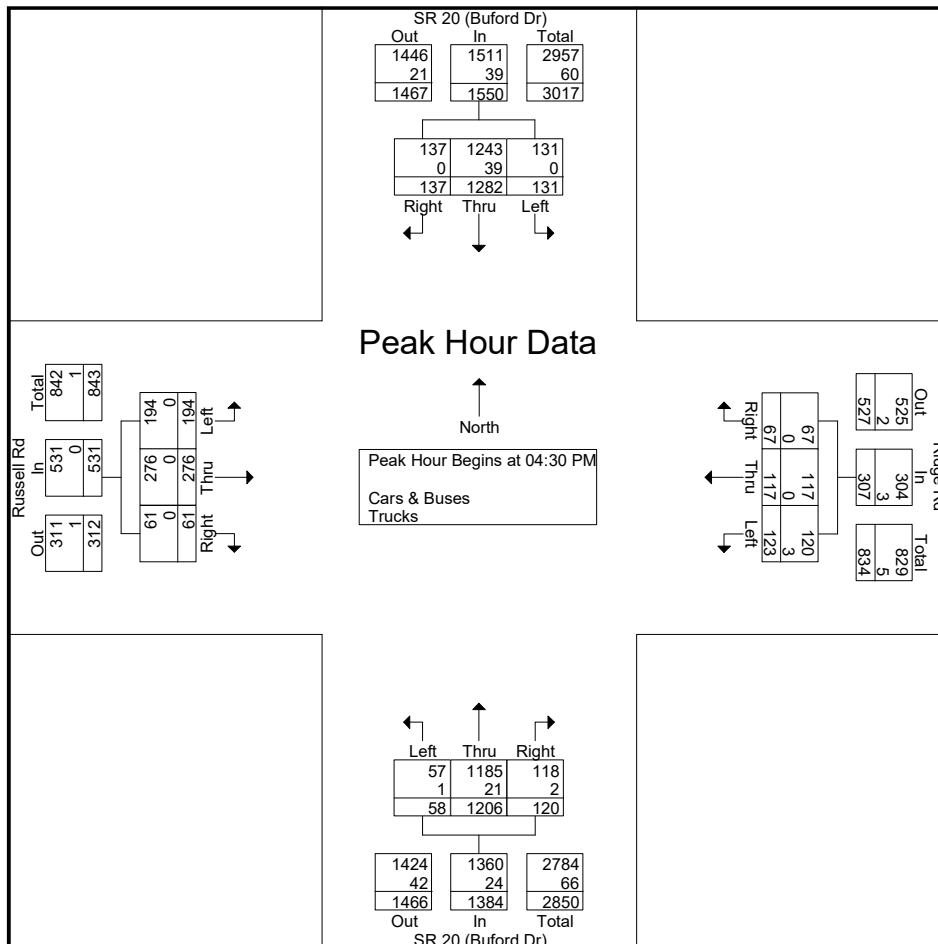
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ Russell Rd -
Ridge Rd
7-9 am | 4-6 pm

File Name : 20220386
Site Code : 20220386
Start Date : 08-25-2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Russell Rd Eastbound				Ridge Rd Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	287	22	322	36	273	37	346	43	57	10	110	37	28	14	79	857
04:45 PM	18	330	23	371	32	373	39	444	53	80	19	152	28	27	16	71	1038
05:00 PM	13	300	28	341	34	338	26	398	57	72	18	147	33	26	20	79	965
05:15 PM	14	289	47	350	29	298	35	362	41	67	14	122	25	36	17	78	912
Total Volume	58	1206	120	1384	131	1282	137	1550	194	276	61	531	123	117	67	307	3772
% App. Total	4.2	87.1	8.7		8.5	82.7	8.8		36.5	52	11.5		40.1	38.1	21.8		
PHF	.806	.914	.638	.933	.910	.859	.878	.873	.851	.863	.803	.873	.831	.813	.838	.972	.908
Cars & Buses	57	1185	118	1360	131	1243	137	1511	194	276	61	531	120	117	67	304	3706
% Cars & Buses	98.3	98.3	98.3	98.3	100	97.0	100	97.5	100	100	100	100	97.6	100	100	99.0	98.3
Trucks	1	21	2	24	0	39	0	39	0	0	0	0	3	0	0	3	66
% Trucks	1.7	1.7	1.7	1.7	0	3.0	0	2.5	0	0	0	0	2.4	0	0	1.0	1.7



A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta,GA 30067

TMC DATA
SR 20 (Buford Dr) @ SR 124
(Braselton Hwy)
7-9 am | 4-6 pm

File Name : 20220387
Site Code : 20220387
Start Date : 08-25-2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Eastbound				SR 124 (Braselton Hwy) Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	289	69	358	27	371	0	398	0	0	0	0	142	0	6	148	904
07:15 AM	0	237	66	303	14	343	0	357	0	0	0	0	199	0	9	208	868
07:30 AM	0	280	79	359	17	359	0	376	0	0	0	0	184	0	6	190	925
07:45 AM	0	352	85	437	9	362	0	371	0	0	0	0	216	1	5	222	1030
Total	0	1158	299	1457	67	1435	0	1502	0	0	0	0	741	1	26	768	3727
08:00 AM	0	296	93	389	10	347	0	357	0	0	0	0	200	0	12	212	958
08:15 AM	0	319	89	408	23	390	0	413	0	0	0	0	178	0	9	187	1008
08:30 AM	0	355	94	449	17	370	0	387	0	0	0	0	204	0	9	213	1049
08:45 AM	0	355	74	429	9	377	0	386	0	0	0	0	191	0	9	200	1015
Total	0	1325	350	1675	59	1484	0	1543	0	0	0	0	773	0	39	812	4030
*** BREAK ***																	
04:00 PM	0	372	189	561	17	347	0	364	0	0	0	0	89	0	11	100	1025
04:15 PM	0	357	192	549	18	369	0	387	0	0	0	0	112	0	8	120	1056
04:30 PM	0	350	182	532	20	324	0	344	0	0	0	0	97	0	8	105	981
04:45 PM	0	372	171	543	14	343	0	357	0	0	0	0	89	0	13	102	1002
Total	0	1451	734	2185	69	1383	0	1452	0	0	0	0	387	0	40	427	4064
05:00 PM	0	347	200	547	16	355	0	371	0	0	0	0	119	0	13	132	1050
05:15 PM	0	380	189	569	16	373	0	389	0	0	0	0	83	0	17	100	1058
05:30 PM	0	378	200	578	27	355	0	382	0	0	0	0	55	0	8	63	1023
05:45 PM	0	328	209	537	13	344	0	357	0	0	0	0	108	0	6	114	1008
Total	0	1433	798	2231	72	1427	0	1499	0	0	0	0	365	0	44	409	4139
Grand Total	0	5367	2181	7548	267	5729	0	5996	0	0	0	0	2266	1	149	2416	15960
Apprch %	0	71.1	28.9		4.5	95.5	0		0	0	0	0	93.8	0	6.2		
Total %	0	33.6	13.7	47.3	1.7	35.9	0	37.6	0	0	0	0	14.2	0	0.9	15.1	
Cars & Buses	0	5139	2126	7265	254	5494	0	5748	0	0	0	0	2218	1	142	2361	15374
% Cars & Buses	0	95.8	97.5	96.3	95.1	95.9	0	95.9	0	0	0	0	97.9	100	95.3	97.7	96.3
Trucks	0	228	55	283	13	235	0	248	0	0	0	0	48	0	7	55	586
% Trucks	0	4.2	2.5	3.7	4.9	4.1	0	4.1	0	0	0	0	2.1	0	4.7	2.3	3.7

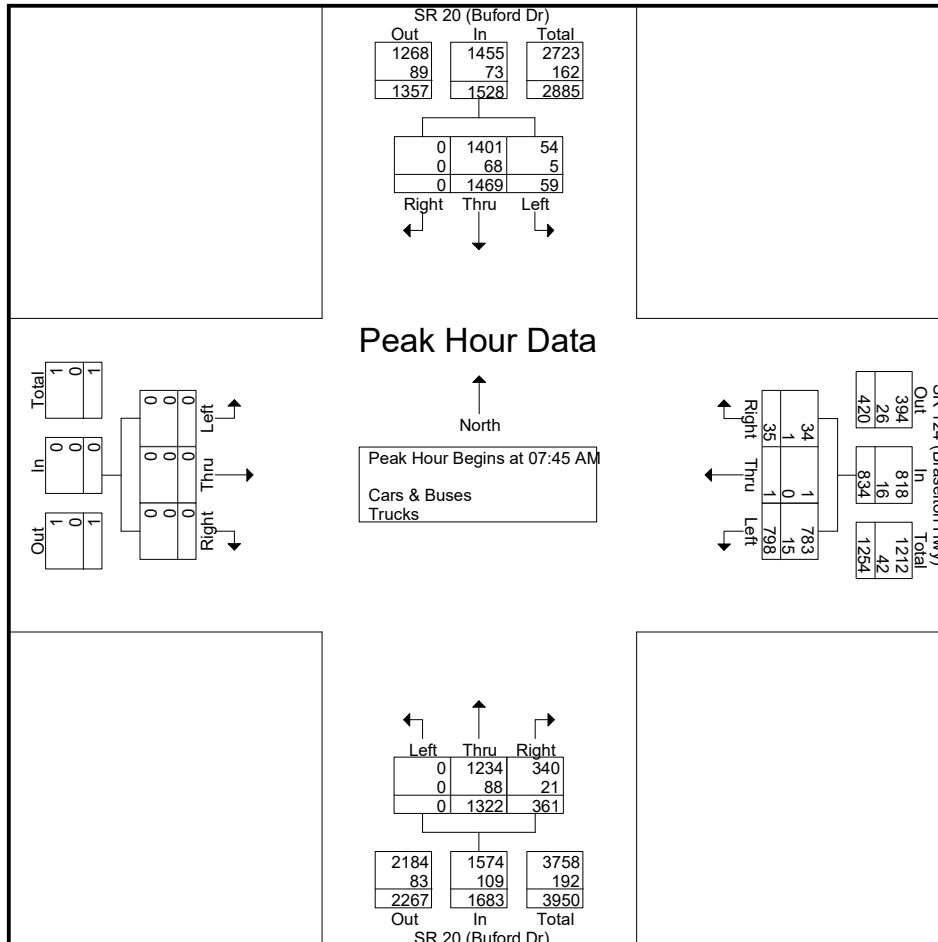
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ SR 124
(Braselton Hwy)
7-9 am | 4-6 pm

File Name : 20220387
Site Code : 20220387
Start Date : 08-25-2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Eastbound				SR 124 (Braselton Hwy) Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	352	85	437	9	362	0	371	0	0	0	0	216	1	5	222	1030
08:00 AM	0	296	93	389	10	347	0	357	0	0	0	0	200	0	12	212	958
08:15 AM	0	319	89	408	23	390	0	413	0	0	0	0	178	0	9	187	1008
08:30 AM	0	355	94	449	17	370	0	387	0	0	0	0	204	0	9	213	1049
Total Volume	0	1322	361	1683	59	1469	0	1528	0	0	0	0	798	1	35	834	4045
% App. Total	0	78.6	21.4		3.9	96.1	0		0	0	0		95.7	0.1	4.2		
PHF	.000	.931	.960	.937	.641	.942	.000	.925	.000	.000	.000	.000	.924	.250	.729	.939	.964
Cars & Buses	0	1234	340	1574	54	1401	0	1455	0	0	0	0	783	1	34	818	3847
% Cars & Buses	0	93.3	94.2	93.5	91.5	95.4	0	95.2	0	0	0	0	98.1	100	97.1	98.1	95.1
Trucks	0	88	21	109	5	68	0	73	0	0	0	0	15	0	1	16	198
% Trucks	0	6.7	5.8	6.5	8.5	4.6	0	4.8	0	0	0	0	1.9	0	2.9	1.9	4.9



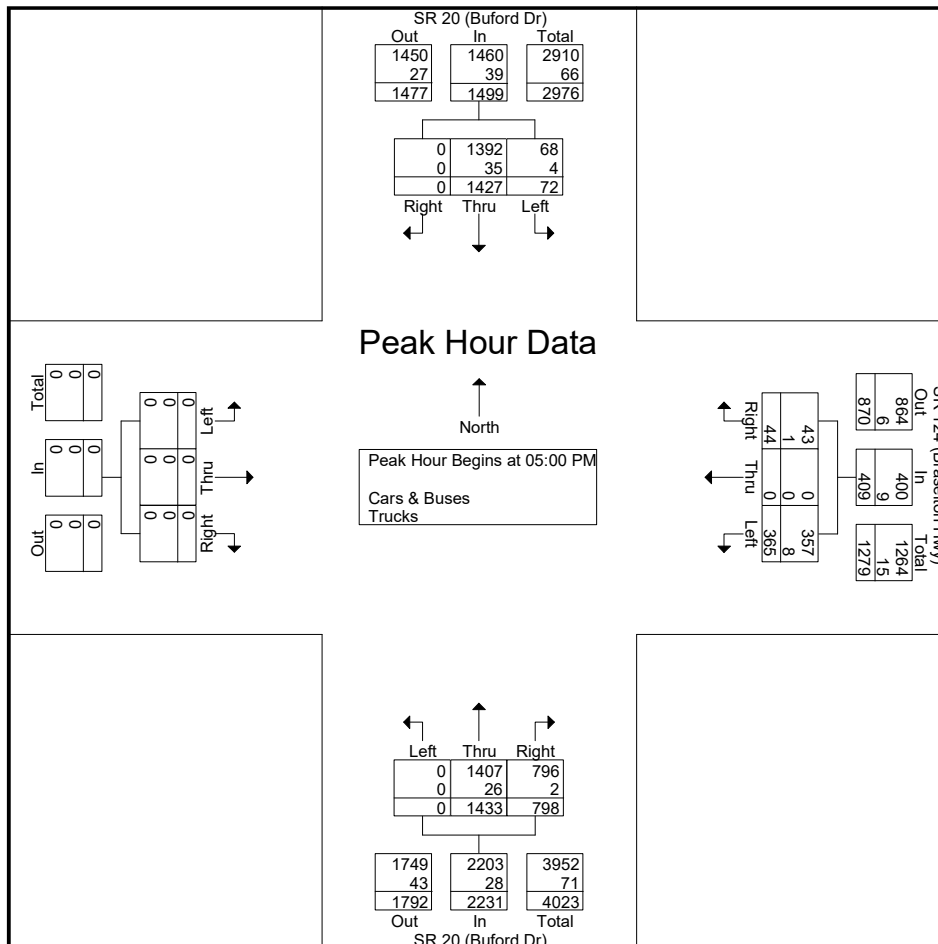
A & R Engineering, Inc.

2160 Kinston court Suite 'O'
Marietta, GA 30067

TMC DATA
SR 20 (Buford Dr) @ SR 124
(Braselton Hwy)
7-9 am | 4-6 pm

File Name : 20220387
Site Code : 20220387
Start Date : 08-25-2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Eastbound				SR 124 (Braselton Hwy) Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	347	200	547	16	355	0	371	0	0	0	0	119	0	13	132	1050
05:15 PM	0	380	189	569	16	373	0	389	0	0	0	0	83	0	17	100	1058
05:30 PM	0	378	200	578	27	355	0	382	0	0	0	0	55	0	8	63	1023
05:45 PM	0	328	209	537	13	344	0	357	0	0	0	0	108	0	6	114	1008
Total Volume	0	1433	798	2231	72	1427	0	1499	0	0	0	0	365	0	44	409	4139
% App. Total	0	64.2	35.8		4.8	95.2	0		0	0	0		89.2	0	10.8		
PHF	.000	.943	.955	.965	.667	.956	.000	.963	.000	.000	.000	.000	.767	.000	.647	.775	.978
Cars & Buses	0	1407	796	2203	68	1392	0	1460	0	0	0	0	357	0	43	400	4063
% Cars & Buses	0	98.2	99.7	98.7	94.4	97.5	0	97.4	0	0	0	0	97.8	0	97.7	97.8	98.2
Trucks	0	26	2	28	4	35	0	39	0	0	0	0	8	0	1	9	76
% Trucks	0	1.8	0.3	1.3	5.6	2.5	0	2.6	0	0	0	0	2.2	0	2.3	2.2	1.8



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Swanson Dr
7-9 am | 4-6 pm

File Name : 20220388
Site Code : 20220388
Start Date : 8/25/2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Swanson Dr Eastbound				Swanson Dr Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	18	279	8	305	15	411	18	444	13	3	20	36	22	4	18	44	829
07:15 AM	23	337	16	376	12	488	11	511	7	3	16	26	7	5	8	20	933
07:30 AM	18	382	15	415	18	463	14	495	11	4	17	32	11	14	7	32	974
07:45 AM	28	381	19	428	13	467	14	494	9	4	17	30	27	13	12	52	1004
Total	87	1379	58	1524	58	1829	57	1944	40	14	70	124	67	36	45	148	3740
08:00 AM	19	365	19	403	9	476	18	503	17	3	21	41	16	10	8	34	981
08:15 AM	33	408	20	461	9	452	13	474	15	4	25	44	26	16	15	57	1036
08:30 AM	34	460	14	508	16	415	15	446	16	10	18	44	20	11	6	37	1035
08:45 AM	32	439	12	483	12	419	19	450	14	9	25	48	25	12	21	58	1039
Total	118	1672	65	1855	46	1762	65	1873	62	26	89	177	87	49	50	186	4091
*** BREAK ***																	
04:00 PM	12	536	31	579	14	383	15	412	18	4	11	33	6	2	16	24	1048
04:15 PM	11	579	29	619	12	393	19	424	16	4	13	33	6	1	13	20	1096
04:30 PM	12	580	28	620	9	362	13	384	20	3	13	36	13	2	10	25	1065
04:45 PM	10	565	26	601	18	456	8	482	20	5	21	46	14	6	14	34	1163
Total	45	2260	114	2419	53	1594	55	1702	74	16	58	148	39	11	53	103	4372
05:00 PM	24	639	26	689	11	441	8	460	21	2	20	43	18	6	26	50	1242
05:15 PM	30	628	34	692	21	384	4	409	23	4	25	52	7	1	16	24	1177
05:30 PM	15	546	28	589	17	362	8	387	24	8	17	49	5	4	14	23	1048
05:45 PM	13	562	23	598	21	383	9	413	20	4	13	37	10	5	6	21	1069
Total	82	2375	111	2568	70	1570	29	1669	88	18	75	181	40	16	62	118	4536
Grand Total	332	7686	348	8366	227	6755	206	7188	264	74	292	630	233	112	210	555	16739
Apprch %	4	91.9	4.2		3.2	94	2.9		41.9	11.7	46.3		42	20.2	37.8		
Total %	2	45.9	2.1	50	1.4	40.4	1.2	42.9	1.6	0.4	1.7	3.8	1.4	0.7	1.3	3.3	
Cars & Buses	330	7460	345	8135	227	6755	206	7188	264	74	292	630	229	109	208	546	16499
% Cars & Buses	99.4	97.1	99.1	97.2	100	100	100	100	100	100	100	100	98.3	97.3	99	98.4	98.6
Trucks	2	226	3	231	0	0	0	0	0	0	0	0	4	3	2	9	240
% Trucks	0.6	2.9	0.9	2.8	0	0	0	0	0	0	0	0	1.7	2.7	1	1.6	1.4

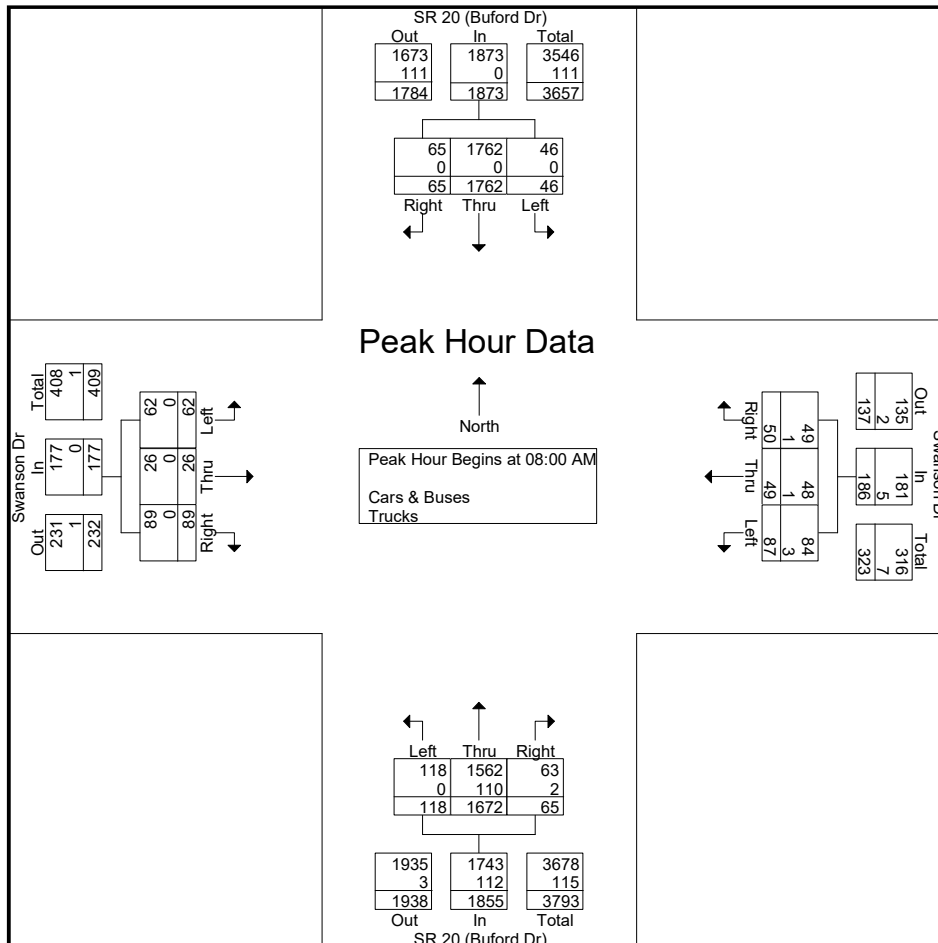
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Swanson Dr
7-9 am | 4-6 pm

File Name : 20220388
Site Code : 20220388
Start Date : 8/25/2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Swanson Dr Eastbound				Swanson Dr Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	19	365	19	403	9	476	18	503	17	3	21	41	16	10	8	34	981
08:15 AM	33	408	20	461	9	452	13	474	15	4	25	44	26	16	15	57	1036
08:30 AM	34	460	14	508	16	415	15	446	16	10	18	44	20	11	6	37	1035
08:45 AM	32	439	12	483	12	419	19	450	14	9	25	48	25	12	21	58	1039
Total Volume	118	1672	65	1855	46	1762	65	1873	62	26	89	177	87	49	50	186	4091
% App. Total	6.4	90.1	3.5		2.5	94.1	3.5		35	14.7	50.3		46.8	26.3	26.9		
PHF	.868	.909	.813	.913	.719	.925	.855	.931	.912	.650	.890	.922	.837	.766	.595	.802	.984
Cars & Buses	118	1562	63	1743	46	1762	65	1873	62	26	89	177	84	48	49	181	3974
% Cars & Buses	100	93.4	96.9	94.0	100	100	100	100	100	100	100	100	96.6	98.0	98.0	97.3	97.1
Trucks	0	110	2	112	0	0	0	0	0	0	0	0	3	1	1	5	117
% Trucks	0	6.6	3.1	6.0	0	0	0	0	0	0	0	0	3.4	2.0	2.0	2.7	2.9



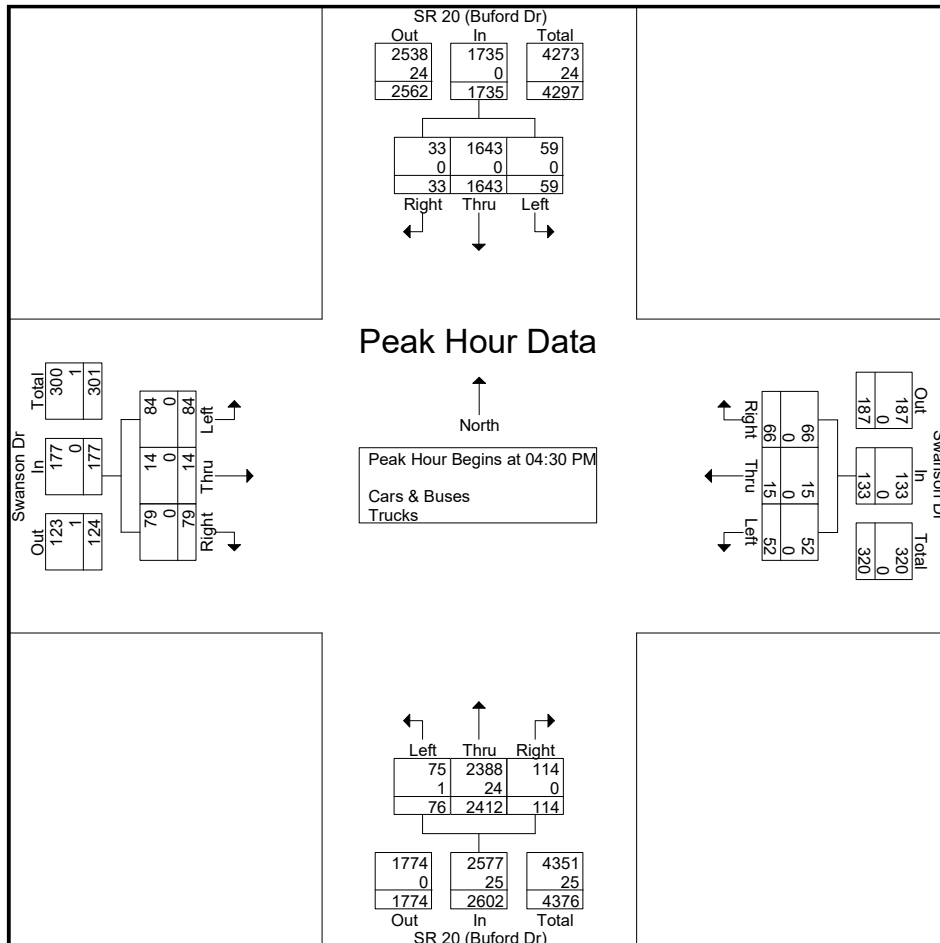
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Swanson Dr
7-9 am | 4-6 pm

File Name : 20220388
Site Code : 20220388
Start Date : 8/25/2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				Swanson Dr Eastbound				Swanson Dr Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	580	28	620	9	362	13	384	20	3	13	36	13	2	10	25	1065
04:45 PM	10	565	26	601	18	456	8	482	20	5	21	46	14	6	14	34	1163
05:00 PM	24	639	26	689	11	441	8	460	21	2	20	43	18	6	26	50	1242
05:15 PM	30	628	34	692	21	384	4	409	23	4	25	52	7	1	16	24	1177
Total Volume	76	2412	114	2602	59	1643	33	1735	84	14	79	177	52	15	66	133	4647
% App. Total	2.9	92.7	4.4		3.4	94.7	1.9		47.5	7.9	44.6		39.1	11.3	49.6		
PHF	.633	.944	.838	.940	.702	.901	.635	.900	.913	.700	.790	.851	.722	.625	.635	.665	.935
Cars & Buses	75	2388	114	2577	59	1643	33	1735	84	14	79	177	52	15	66	133	4622
% Cars & Buses	98.7	99.0	100	99.0	100	100	100	100	100	100	100	100	100	100	100	100	99.5
Trucks	1	24	0	25	0	0	0	0	0	0	0	0	0	0	0	0	25
% Trucks	1.3	1.0	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0.5



A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Calvin Davis Circle
7-9 am | 4-6 pm

File Name : 20220389
Site Code : 20220389
Start Date : 8/25/2022
Page No : 1

Groups Printed- Cars & Buses - Trucks

Start Time	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Calvin Davis Circle Eastbound				Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	19	237	0	256	0	273	2	275	3	0	26	29	0	0	0	0	560
07:15 AM	11	260	0	271	0	329	2	331	5	0	26	31	0	0	0	0	633
07:30 AM	23	282	0	305	0	424	4	428	1	0	26	27	0	0	0	0	760
07:45 AM	28	289	0	317	0	341	8	349	3	0	24	27	0	0	0	0	693
Total	81	1068	0	1149	0	1367	16	1383	12	0	102	114	0	0	0	0	2646
08:00 AM	24	302	0	326	0	301	14	315	1	0	29	30	0	0	0	0	671
08:15 AM	32	263	0	295	0	338	12	350	15	0	37	52	0	0	0	0	697
08:30 AM	24	329	0	353	0	304	11	315	3	0	44	47	0	0	0	0	715
08:45 AM	14	416	0	430	0	354	2	356	3	0	18	21	0	0	0	0	807
Total	94	1310	0	1404	0	1297	39	1336	22	0	128	150	0	0	0	0	2890
*** BREAK ***																	
04:00 PM	16	387	0	403	0	361	7	368	4	0	34	38	0	0	0	0	809
04:15 PM	14	341	0	355	0	332	7	339	2	0	29	31	0	0	0	0	725
04:30 PM	15	342	0	357	0	287	6	293	4	0	33	37	0	0	0	0	687
04:45 PM	17	368	0	385	0	358	7	365	1	0	37	38	0	0	0	0	788
Total	62	1438	0	1500	0	1338	27	1365	11	0	133	144	0	0	0	0	3009
05:00 PM	9	365	0	374	0	363	4	367	5	0	36	41	0	0	0	0	782
05:15 PM	12	421	0	433	0	327	11	338	2	0	40	42	0	0	0	0	813
05:30 PM	14	317	0	331	0	305	5	310	3	0	28	31	0	0	0	0	672
05:45 PM	16	326	0	342	0	298	7	305	3	0	28	31	0	0	0	0	678
Total	51	1429	0	1480	0	1293	27	1320	13	0	132	145	0	0	0	0	2945
Grand Total	288	5245	0	5533	0	5295	109	5404	58	0	495	553	0	0	0	0	11490
Apprch %	5.2	94.8	0		0	98	2		10.5	0	89.5		0	0	0		
Total %	2.5	45.6	0	48.2	0	46.1	0.9	47	0.5	0	4.3	4.8	0	0	0	0	
Cars & Buses	288	5027	0	5315	0	5059	109	5168	58	0	494	552	0	0	0	0	11035
% Cars & Buses	100	95.8	0	96.1	0	95.5	100	95.6	100	0	99.8	99.8	0	0	0	0	96
Trucks	0	218	0	218	0	236	0	236	0	0	1	1	0	0	0	0	455
% Trucks	0	4.2	0	3.9	0	4.5	0	4.4	0	0	0.2	0.2	0	0	0	0	4

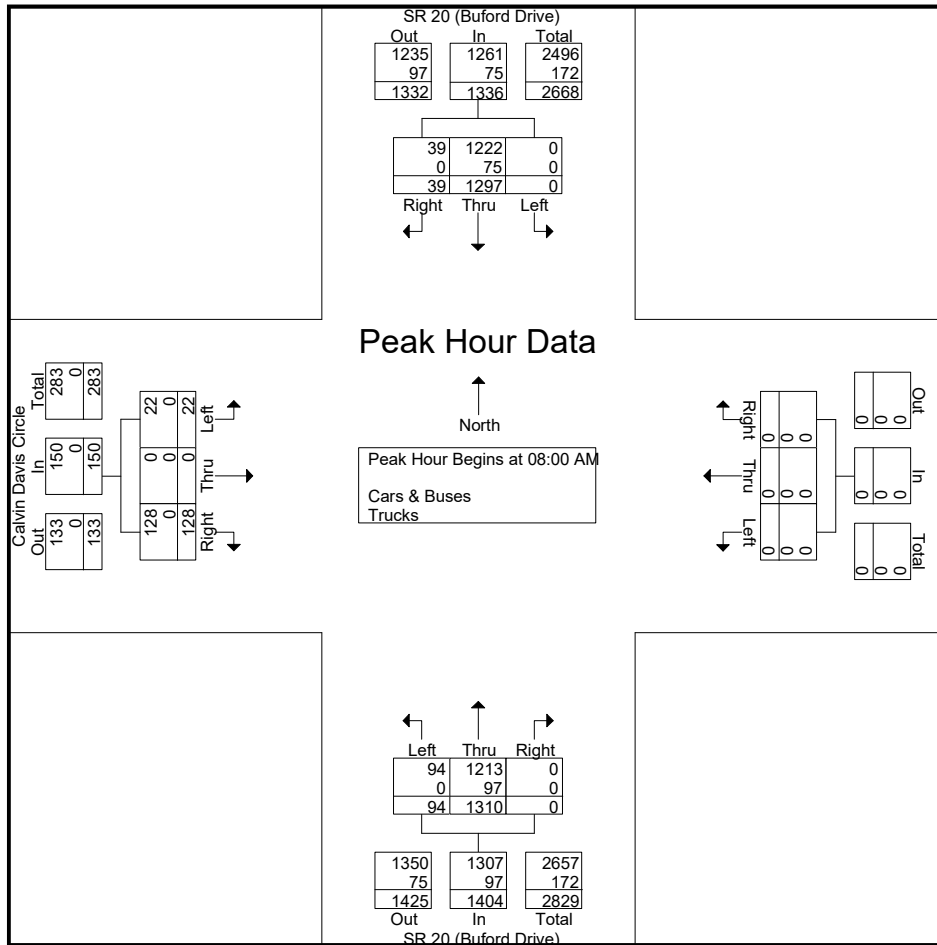
A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Calvin Davis Circle
7-9 am | 4-6 pm

File Name : 20220389
Site Code : 20220389
Start Date : 8/25/2022
Page No : 2

Start Time	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Calvin Davis Circle Eastbound				Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	24	302	0	326	0	301	14	315	1	0	29	30	0	0	0	0	671
08:15 AM	32	263	0	295	0	338	12	350	15	0	37	52	0	0	0	0	697
08:30 AM	24	329	0	353	0	304	11	315	3	0	44	47	0	0	0	0	715
08:45 AM	14	416	0	430	0	354	2	356	3	0	18	21	0	0	0	0	807
Total Volume	94	1310	0	1404	0	1297	39	1336	22	0	128	150	0	0	0	0	2890
% App. Total	6.7	93.3	0		0	97.1	2.9		14.7	0	85.3		0	0	0		
PHF	.734	.787	.000	.816	.000	.916	.696	.938	.367	.000	.727	.721	.000	.000	.000	.000	.895
Cars & Buses	94	1213	0	1307	0	1222	39	1261	22	0	128	150	0	0	0	0	2718
% Cars & Buses	100	92.6	0	93.1	0	94.2	100	94.4	100	0	100	100	0	0	0	0	94.0
Trucks	0	97	0	97	0	75	0	75	0	0	0	0	0	0	0	0	172
% Trucks	0	7.4	0	6.9	0	5.8	0	5.6	0	0	0	0	0	0	0	0	6.0



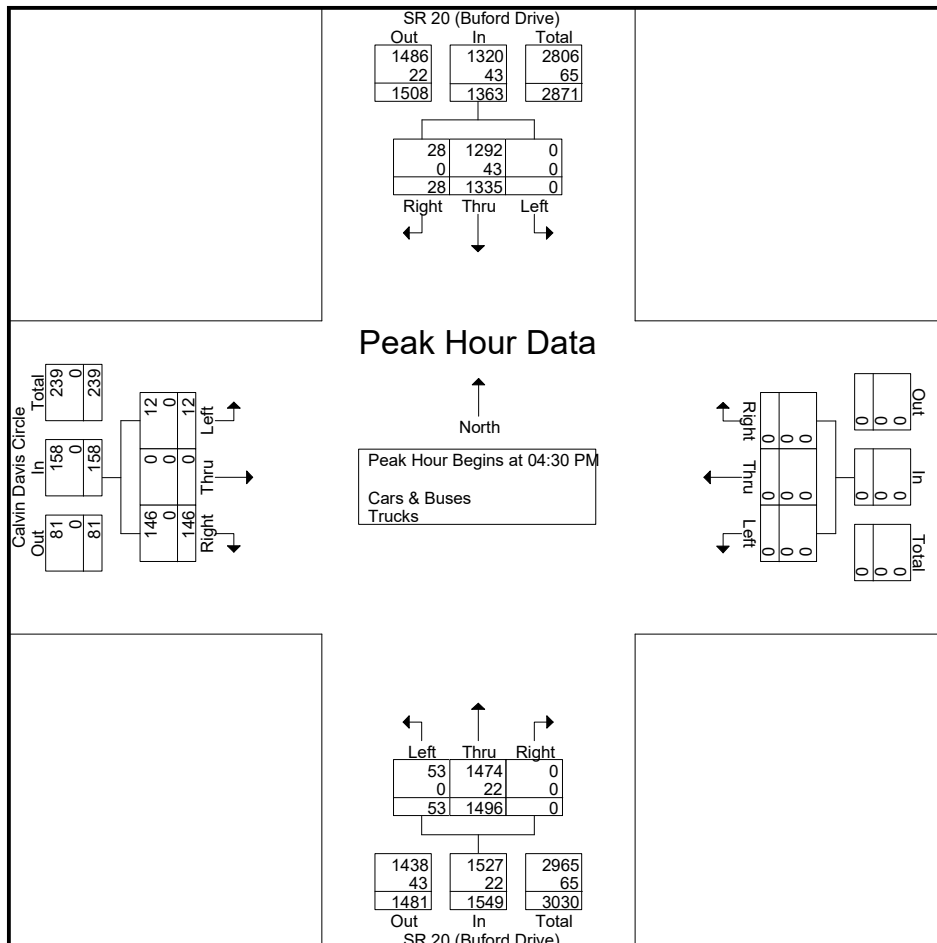
A & R Engineering, Inc.

2160 Kinston Court Suite 'o'
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ Calvin Davis Circle
7-9 am | 4-6 pm

File Name : 20220389
Site Code : 20220389
Start Date : 8/25/2022
Page No : 3

Start Time	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Calvin Davis Circle Eastbound				Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	15	342	0	357	0	287	6	293	4	0	33	37	0	0	0	0	687
04:45 PM	17	368	0	385	0	358	7	365	1	0	37	38	0	0	0	0	788
05:00 PM	9	365	0	374	0	363	4	367	5	0	36	41	0	0	0	0	782
05:15 PM	12	421	0	433	0	327	11	338	2	0	40	42	0	0	0	0	813
Total Volume	53	1496	0	1549	0	1335	28	1363	12	0	146	158	0	0	0	0	3070
% App. Total	3.4	96.6	0		0	97.9	2.1		7.6	0	92.4		0	0	0		
PHF	.779	.888	.000	.894	.000	.919	.636	.928	.600	.000	.913	.940	.000	.000	.000	.000	.944
Cars & Buses	53	1474	0	1527	0	1292	28	1320	12	0	146	158	0	0	0	0	3005
% Cars & Buses	100	98.5	0	98.6	0	96.8	100	96.8	100	0	100	100	0	0	0	0	97.9
Trucks	0	22	0	22	0	43	0	43	0	0	0	0	0	0	0	0	65
% Trucks	0	1.5	0	1.4	0	3.2	0	3.2	0	0	0	0	0	0	0	0	2.1



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 WB Ramps
7-9 am | 4-6 pm

File Name : 20220390
Site Code : 20220390
Start Date : 8/24/2022
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 WB Ramps Eastbound				SR 316 WB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	66	415	0	481	0	261	212	473	0	0	0	0	28	23	33	84	1038
07:15 AM	91	345	0	436	0	269	229	498	0	0	0	0	24	25	29	78	1012
07:30 AM	86	418	0	504	0	289	224	513	0	0	0	0	25	30	23	78	1095
07:45 AM	62	427	0	489	0	312	231	543	0	0	0	0	22	20	20	62	1094
Total	305	1605	0	1910	0	1131	896	2027	0	0	0	0	99	98	105	302	4239
08:00 AM	75	395	0	470	0	293	235	528	0	0	0	0	28	27	29	84	1082
08:15 AM	68	394	0	462	0	286	233	519	0	0	0	0	32	31	27	90	1071
08:30 AM	61	389	0	450	0	276	219	495	0	0	0	0	21	23	17	61	1006
08:45 AM	54	353	0	407	0	287	201	488	0	0	0	0	18	19	14	51	946
Total	258	1531	0	1789	0	1142	888	2030	0	0	0	0	99	100	87	286	4105
*** BREAK ***																	
04:00 PM	101	390	0	491	0	298	141	439	0	0	0	0	32	21	29	82	1012
04:15 PM	79	430	0	509	0	343	106	449	0	0	0	0	25	19	40	84	1042
04:30 PM	81	437	0	518	0	315	122	437	0	0	0	0	21	21	18	60	1015
04:45 PM	73	414	0	487	0	314	123	437	0	0	0	0	21	13	25	59	983
Total	334	1671	0	2005	0	1270	492	1762	0	0	0	0	99	74	112	285	4052
05:00 PM	37	417	0	454	0	321	69	390	0	0	0	0	16	14	11	41	885
05:15 PM	32	412	0	444	0	315	76	391	0	0	0	0	14	14	8	36	871
05:30 PM	25	418	0	443	0	328	72	400	0	0	0	0	11	12	12	35	878
05:45 PM	22	435	0	457	0	315	65	380	0	0	0	0	9	10	8	27	864
Total	116	1682	0	1798	0	1279	282	1561	0	0	0	0	50	50	39	139	3498
Grand Total	1013	6489	0	7502	0	4822	2558	7380	0	0	0	0	347	322	343	1012	15894
Apprch %	13.5	86.5	0		0	65.3	34.7		0	0	0		34.3	31.8	33.9		
Total %	6.4	40.8	0	47.2	0	30.3	16.1	46.4	0	0	0	0	2.2	2	2.2	6.4	

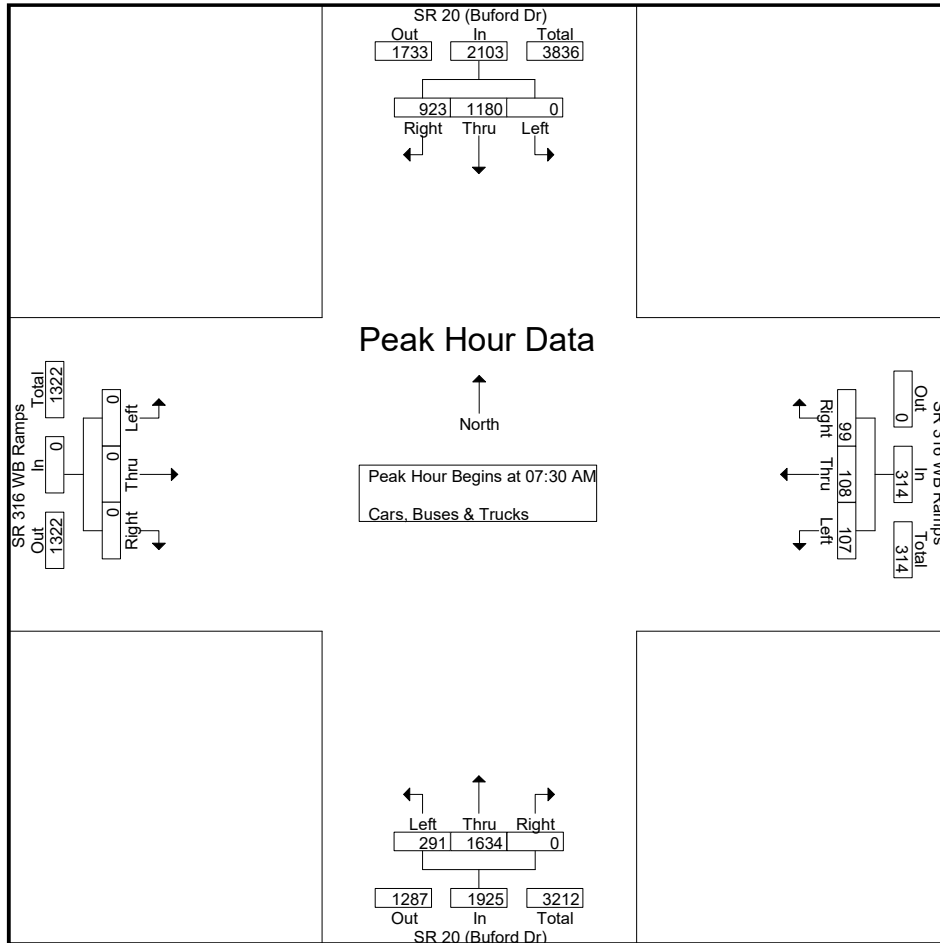
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 WB Ramps
7-9 am | 4-6 pm

File Name : 20220390
Site Code : 20220390
Start Date : 8/24/2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 WB Ramps Eastbound				SR 316 WB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	86	418	0	504	0	289	224	513	0	0	0	0	25	30	23	78	1095
07:45 AM	62	427	0	489	0	312	231	543	0	0	0	0	22	20	20	62	1094
08:00 AM	75	395	0	470	0	293	235	528	0	0	0	0	28	27	29	84	1082
08:15 AM	68	394	0	462	0	286	233	519	0	0	0	0	32	31	27	90	1071
Total Volume	291	1634	0	1925	0	1180	923	2103	0	0	0	0	107	108	99	314	4342
% App. Total	15.1	84.9	0		0	56.1	43.9		0	0	0		34.1	34.4	31.5		
PHF	.846	.957	.000	.955	.000	.946	.982	.968	.000	.000	.000	.000	.836	.871	.853	.872	.991



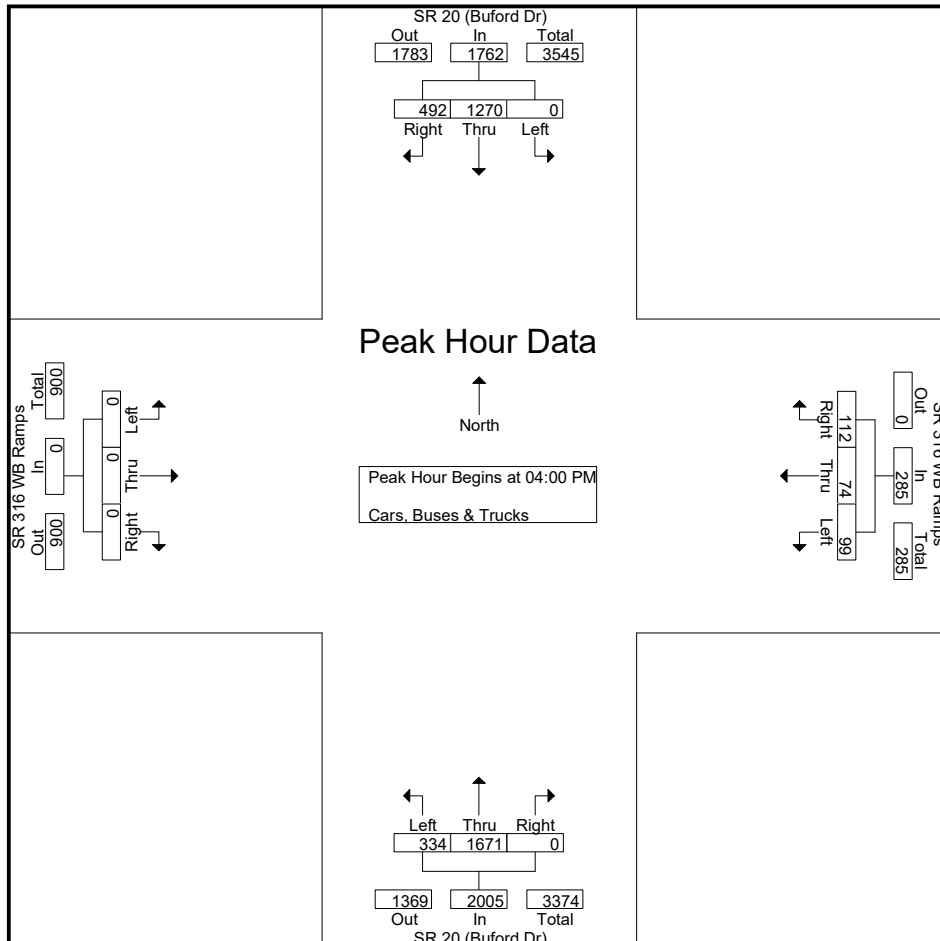
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 WB Ramps
7-9 am | 4-6 pm

File Name : 20220390
Site Code : 20220390
Start Date : 8/24/2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 WB Ramps Eastbound				SR 316 WB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	101	390	0	491	0	298	141	439	0	0	0	0	32	21	29	82	1012
04:15 PM	79	430	0	509	0	343	106	449	0	0	0	0	25	19	40	84	1042
04:30 PM	81	437	0	518	0	315	122	437	0	0	0	0	21	21	18	60	1015
04:45 PM	73	414	0	487	0	314	123	437	0	0	0	0	21	13	25	59	983
Total Volume	334	1671	0	2005	0	1270	492	1762	0	0	0	0	99	74	112	285	4052
% App. Total	16.7	83.3	0		0	72.1	27.9		0	0	0		34.7	26	39.3		
PHF	.827	.956	.000	.968	.000	.926	.872	.981	.000	.000	.000	.000	.773	.881	.700	.848	.972



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 EB Ramps
7-9 am | 4-6 pm

File Name : 20220391
Site Code : 20220391
Start Date : 8/24/2022
Page No : 1

Groups Printed- Cars, Buses & Trucks

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 EB Ramps Eastbound				SR 316 EB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	436	12	448	22	267	0	289	45	28	38	111	0	0	0	0	848
07:15 AM	0	362	9	371	30	263	0	293	74	35	36	145	0	0	0	0	809
07:30 AM	0	413	18	431	26	288	0	314	91	33	44	168	0	0	0	0	913
07:45 AM	0	386	8	394	20	314	0	334	103	35	42	180	0	0	0	0	908
Total	0	1597	47	1644	98	1132	0	1230	313	131	160	604	0	0	0	0	3478
08:00 AM	0	376	9	385	26	295	0	321	94	29	50	173	0	0	0	0	879
08:15 AM	0	386	7	393	19	299	0	318	76	31	38	145	0	0	0	0	856
08:30 AM	0	375	10	385	26	271	0	297	75	34	43	152	0	0	0	0	834
08:45 AM	0	315	16	331	30	275	0	305	92	39	54	185	0	0	0	0	821
Total	0	1452	42	1494	101	1140	0	1241	337	133	185	655	0	0	0	0	3390
*** BREAK ***																	
04:00 PM	0	277	4	281	35	295	0	330	214	148	77	439	0	0	0	0	1050
04:15 PM	0	331	5	336	21	347	0	368	178	148	97	423	0	0	0	0	1127
04:30 PM	0	287	2	289	24	300	0	324	231	203	67	501	0	0	0	0	1114
04:45 PM	0	247	5	252	30	305	0	335	240	198	88	526	0	0	0	0	1113
Total	0	1142	16	1158	110	1247	0	1357	863	697	329	1889	0	0	0	0	4404
05:00 PM	0	239	3	242	28	315	0	343	215	205	75	495	0	0	0	0	1080
05:15 PM	0	219	5	224	35	302	0	337	225	188	54	467	0	0	0	0	1028
05:30 PM	0	245	2	247	24	305	0	329	198	209	95	502	0	0	0	0	1078
05:45 PM	0	255	5	260	30	298	0	328	202	215	82	499	0	0	0	0	1087
Total	0	958	15	973	117	1220	0	1337	840	817	306	1963	0	0	0	0	4273
Grand Total	0	5149	120	5269	426	4739	0	5165	2353	1778	980	5111	0	0	0	0	15545
Apprch %	0	97.7	2.3		8.2	91.8	0		46	34.8	19.2		0	0	0		
Total %	0	33.1	0.8	33.9	2.7	30.5	0	33.2	15.1	11.4	6.3	32.9	0	0	0	0	

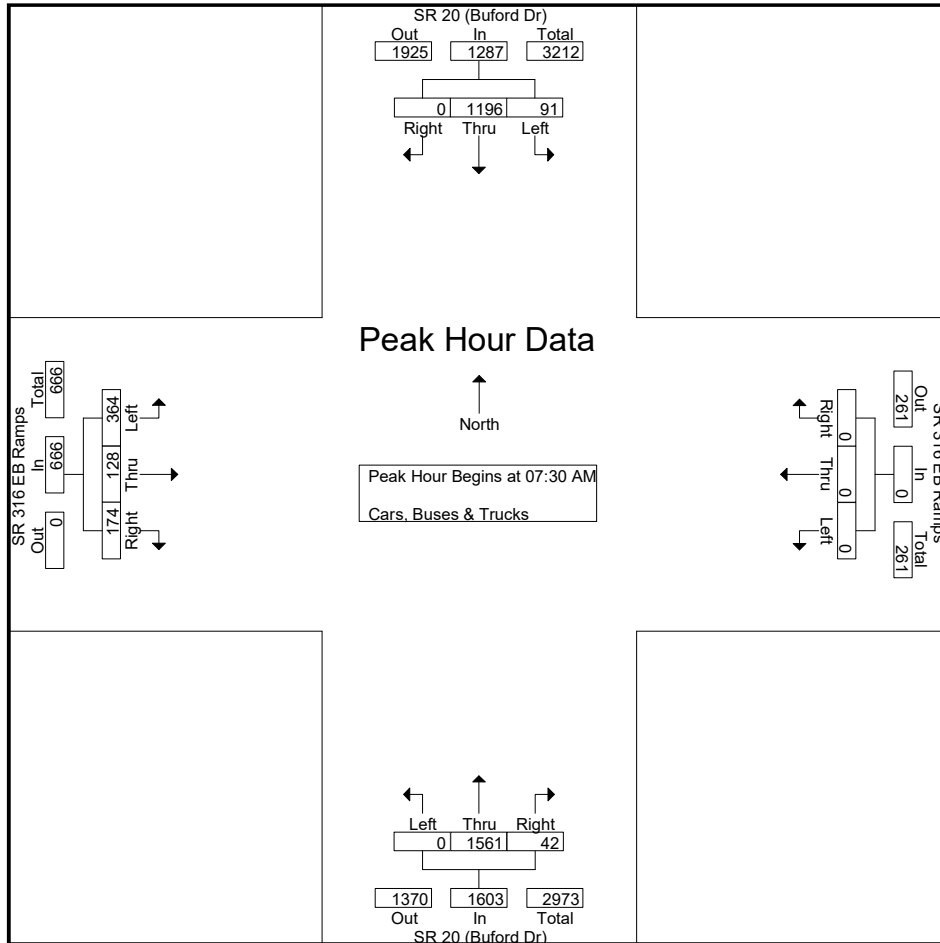
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 EB Ramps
7-9 am | 4-6 pm

File Name : 20220391
Site Code : 20220391
Start Date : 8/24/2022
Page No : 2

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 EB Ramps Eastbound				SR 316 EB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	413	18	431	26	288	0	314	91	33	44	168	0	0	0	0	913
07:45 AM	0	386	8	394	20	314	0	334	103	35	42	180	0	0	0	0	908
08:00 AM	0	376	9	385	26	295	0	321	94	29	50	173	0	0	0	0	879
08:15 AM	0	386	7	393	19	299	0	318	76	31	38	145	0	0	0	0	856
Total Volume	0	1561	42	1603	91	1196	0	1287	364	128	174	666	0	0	0	0	3556
% App. Total	0	97.4	2.6		7.1	92.9	0		54.7	19.2	26.1		0	0	0		
PHF	.000	.945	.583	.930	.875	.952	.000	.963	.883	.914	.870	.925	.000	.000	.000	.000	.974



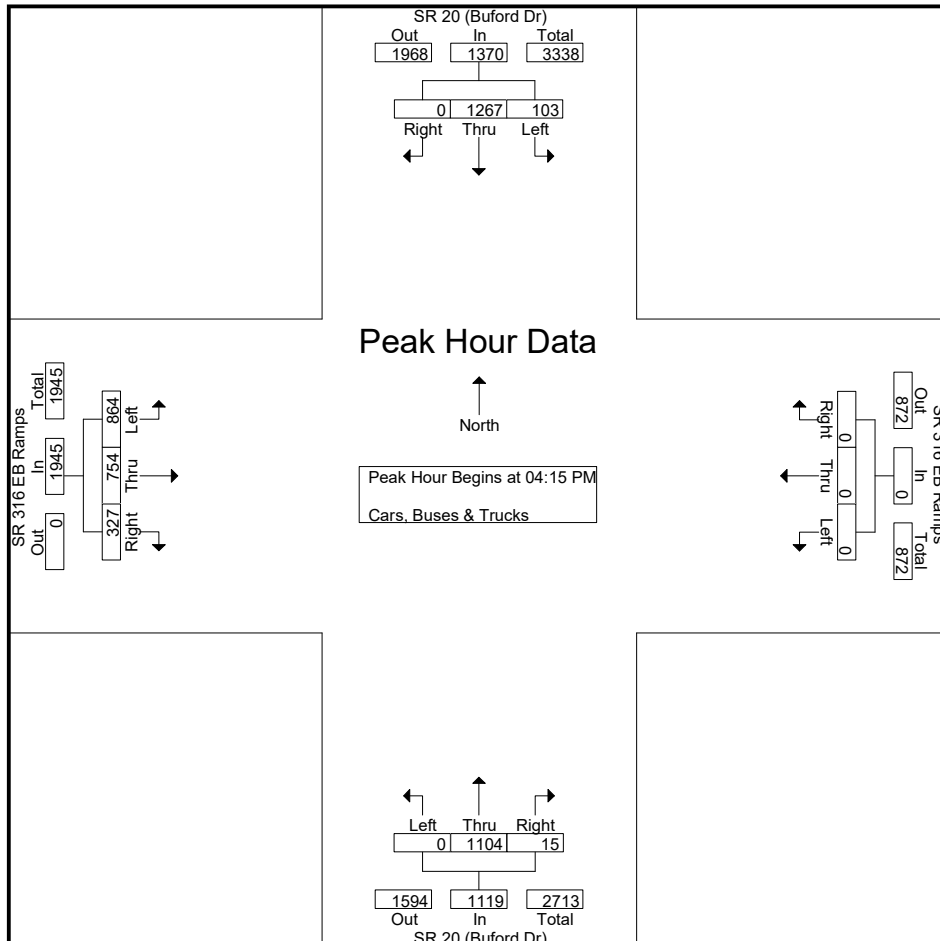
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC Data
SR 20 (Buford Dr) @ SR 316 EB Ramps
7-9 am | 4-6 pm

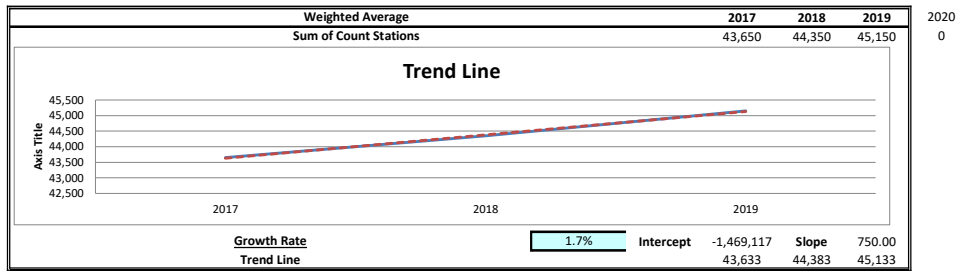
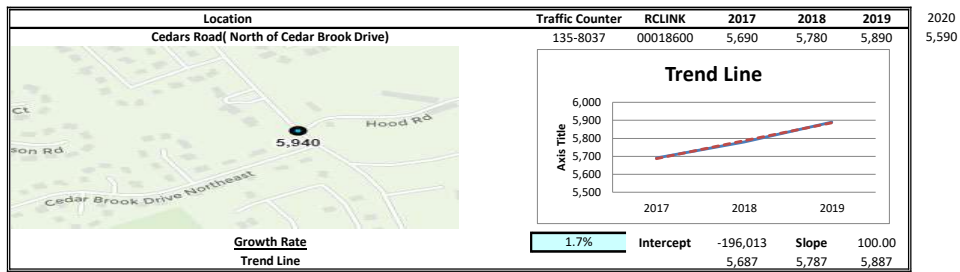
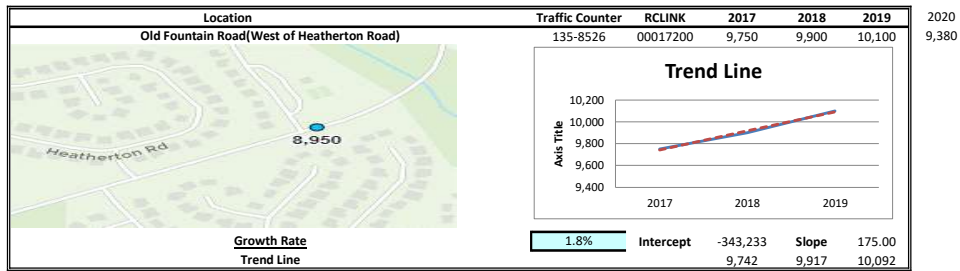
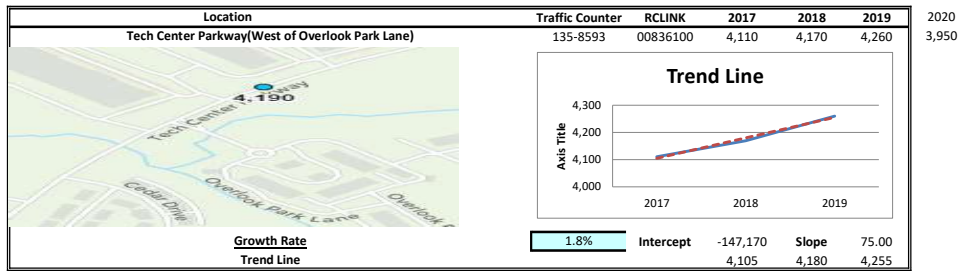
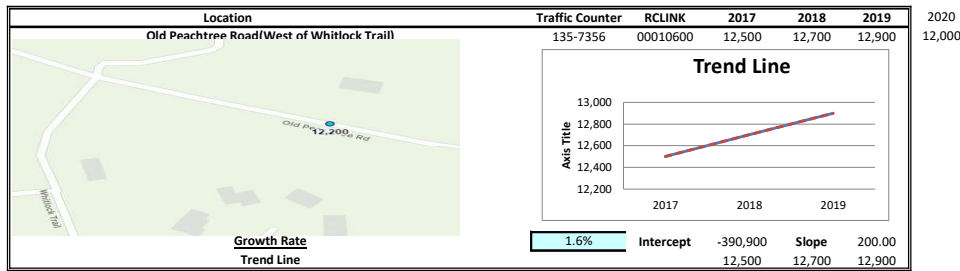
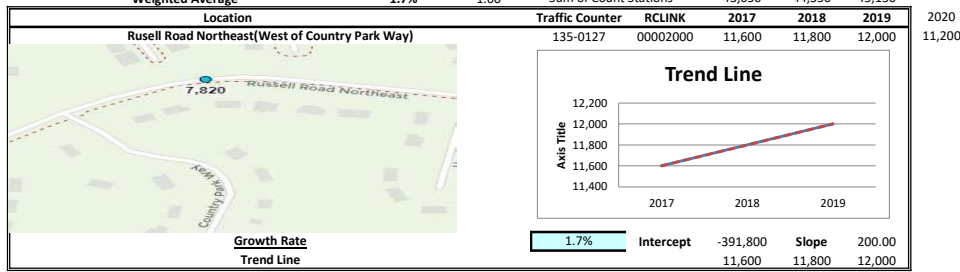
File Name : 20220391
Site Code : 20220391
Start Date : 8/24/2022
Page No : 3

Start Time	SR 20 (Buford Dr) Northbound				SR 20 (Buford Dr) Southbound				SR 316 EB Ramps Eastbound				SR 316 EB Ramps Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	331	5	336	21	347	0	368	178	148	97	423	0	0	0	0	1127
04:30 PM	0	287	2	289	24	300	0	324	231	203	67	501	0	0	0	0	1114
04:45 PM	0	247	5	252	30	305	0	335	240	198	88	526	0	0	0	0	1113
05:00 PM	0	239	3	242	28	315	0	343	215	205	75	495	0	0	0	0	1080
Total Volume	0	1104	15	1119	103	1267	0	1370	864	754	327	1945	0	0	0	0	4434
% App. Total	0	98.7	1.3		7.5	92.5	0		44.4	38.8	16.8		0	0	0		
PHF	.000	.834	.750	.833	.858	.913	.000	.931	.900	.920	.843	.924	.000	.000	.000	.000	.984



Linear Regression of Daily Traffic

Location	Growth Rate	R Squared	Station ID	Route	2017	2018	2019	2020
Russell Road Northeast(West of Country Park Way)	1.7%	1.00	135-0127	00002000	11600	11800	12000	11200
Old Peachtree Road(West of Whitlock Trail)	1.6%	1.00	135-7356	00010600	12500	12700	12900	12000
Tech Center Parkway(West of Overlook Park Lane)	1.8%	0.99	135-8593	00836100	4110	4170	4260	3950
Old Fountain Road(West of Heatherton Road)	1.8%	0.99	135-8526	00017200	9750	9900	10100	9380
Cedars Road(North of Cedar Brook Drive)	1.7%	1.00	135-8037	00018600	5690	5780	5890	5590
Weighted Average	1.7%	1.00	Sum of Count Stations =		43,650	44,350	45,150	



Existing Intersection Analysis

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

1a. Existing AM
09/30/2022

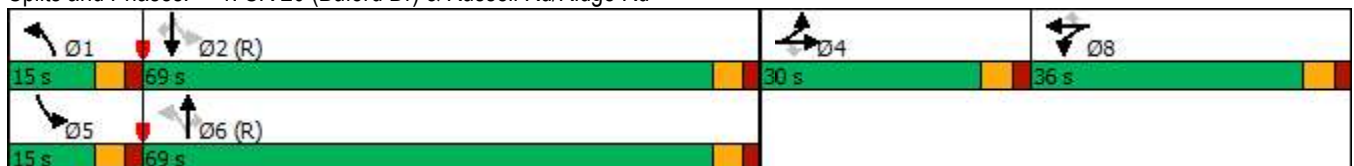


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	204	79	42	171	61	51	986	48	78	1197	195
Future Volume (vph)	204	79	42	171	61	51	986	48	78	1197	195
Lane Group Flow (vph)	219	85	45	315	66	55	1060	52	84	1287	210
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	30.0	30.0	30.0	36.0	36.0	15.0	69.0	69.0	15.0	69.0	69.0
Total Split (%)	20.0%	20.0%	20.0%	24.0%	24.0%	10.0%	46.0%	46.0%	10.0%	46.0%	46.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.84	0.31	0.15	0.90	0.17	0.34	0.68	0.07	0.37	0.78	0.24
Control Delay	88.1	59.6	1.0	87.0	3.8	22.9	35.9	0.2	22.0	38.7	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.1	59.6	1.0	87.0	3.8	22.9	35.9	0.2	22.0	38.7	4.1
Queue Length 50th (ft)	208	74	0	298	0	26	452	0	40	593	2
Queue Length 95th (ft)	#321	129	0	#457	16	50	541	1	70	710	51
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	291	304	333	374	400	184	1550	780	238	1648	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.28	0.14	0.84	0.17	0.30	0.68	0.07	0.35	0.78	0.24

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

1a. Existing AM
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	79	42	122	171	61	51	986	48	78	1197	195
Future Volume (veh/h)	204	79	42	122	171	61	51	986	48	78	1197	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1826	1870	1885	1870	1841	1796	1870	1870	1826	1885
Adj Flow Rate, veh/h	219	85	45	131	184	66	55	1060	52	84	1287	210
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	5	2	1	2	4	7	2	2	5	1
Cap, veh/h	245	256	212	142	200	293	172	1692	786	248	1740	801
Arrive On Green	0.14	0.14	0.14	0.19	0.19	0.19	0.03	0.50	0.50	0.04	0.50	0.50
Sat Flow, veh/h	1795	1870	1547	768	1079	1585	1753	3413	1585	1781	3469	1598
Grp Volume(v), veh/h	219	85	45	315	0	66	55	1060	52	84	1287	210
Grp Sat Flow(s),veh/h/ln	1795	1870	1547	1847	0	1585	1753	1706	1585	1781	1735	1598
Q Serve(g_s), s	18.0	6.2	3.9	25.1	0.0	5.3	2.3	34.1	2.6	3.5	44.1	11.3
Cycle Q Clear(g_c), s	18.0	6.2	3.9	25.1	0.0	5.3	2.3	34.1	2.6	3.5	44.1	11.3
Prop In Lane	1.00		1.00	0.42		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	256	212	342	0	293	172	1692	786	248	1740	801
V/C Ratio(X)	0.89	0.33	0.21	0.92	0.00	0.22	0.32	0.63	0.07	0.34	0.74	0.26
Avail Cap(c_a), veh/h	293	305	253	376	0	322	231	1692	786	297	1740	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.7	58.6	57.6	60.0	0.0	52.0	24.8	27.7	19.7	21.9	29.6	21.5
Incr Delay (d2), s/veh	24.4	0.8	0.5	26.4	0.0	0.4	1.1	1.8	0.2	0.8	2.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	3.0	1.5	14.1	0.0	2.1	1.0	13.7	1.0	1.4	18.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.0	59.3	58.1	86.5	0.0	52.4	25.9	29.4	19.9	22.7	32.5	22.2
LnGrp LOS	F	E	E	F	A	D	C	C	B	C	C	C
Approach Vol, veh/h		349			381			1167			1581	
Approach Delay, s/veh		77.2			80.6			28.8			30.6	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	80.7		26.0	10.9	79.9		33.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	63.5		24.5	9.5	63.5		30.5				
Max Q Clear Time (g_c+I1), s	4.3	46.1		20.0	5.5	36.1		27.1				
Green Ext Time (p_c), s	0.0	13.2		0.5	0.0	14.4		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				40.2								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	9.6						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	22	128	94	1310	0	1297	39
Future Vol, veh/h	22	128	94	1310	0	1297	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	92	90	90
Heavy Vehicles, %	2	2	2	7	2	6	2
Mvmt Flow	24	142	104	1456	0	1441	43

Major/Minor	Minor2	Major1		Major2			
Conflicting Flow All	2377	721	1441	0	1456	-	0
Stage 1	1441	-	-	-	-	-	-
Stage 2	936	-	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	29	370	467	-	168	-	-
Stage 1	184	-	-	-	-	-	-
Stage 2	342	-	-	-	-	-	-
Platoon blocked, %				-	-	-	-
Mov Cap-1 Maneuver	~ 23	370	467	-	168	-	-
Mov Cap-2 Maneuver	~ 23	-	-	-	-	-	-
Stage 1	143	-	-	-	-	-	-
Stage 2	342	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	175.4	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	467	-	147	168	-	-
HCM Lane V/C Ratio	0.224	-	1.134	-	-	-
HCM Control Delay (s)	14.9	-	175.4	0	-	-
HCM Lane LOS	B	-	F	A	-	-
HCM 95th %tile Q(veh)	0.8	-	9.2	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↖	↗	↗	↖	↗	↖
Traffic Vol, veh/h	1	0	2	4	0	4	4	1399	1	6	1415	4
Future Vol, veh/h	1	0	2	4	0	4	4	1399	1	6	1415	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	5	0	5	5	1590	1	7	1608	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2427	3222	804	2418	3222	795	1608	0	0	1590	0	0
Stage 1	1622	1622	-	1600	1600	-	-	-	-	-	-	-
Stage 2	805	1600	-	818	1622	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	17	10	326	17	10	330	402	-	-	409	-	-
Stage 1	107	160	-	111	164	-	-	-	-	-	-	-
Stage 2	342	164	-	336	160	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	16	10	326	17	10	330	402	-	-	409	-	-
Mov Cap-2 Maneuver	78	76	-	81	76	-	-	-	-	-	-	-
Stage 1	106	157	-	110	162	-	-	-	-	-	-	-
Stage 2	333	162	-	328	157	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28	28.5	0	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	402	-	-	78	326	162	409	-	-
HCM Lane V/C Ratio	0.011	-	-	0.015	0.007	0.056	0.017	-	-
HCM Control Delay (s)	14.1	-	-	51.8	16.1	28.5	14	-	-
HCM Lane LOS	B	-	-	F	C	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↖	↗	↗	↖	↗	↗
Traffic Vol, veh/h	1	0	2	6	0	3	10	1387	1	7	1407	9
Future Vol, veh/h	1	0	2	6	0	3	10	1387	1	7	1407	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	7	0	3	11	1576	1	8	1599	10

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2425	3213	800	2414	3213	788	1599	0	0	1576	0	0
Stage 1	1615	1615	-	1598	1598	-	-	-	-	-	-	-
Stage 2	810	1598	-	816	1615	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	17	10	328	17	10	334	406	-	-	414	-	-
Stage 1	108	161	-	111	164	-	-	-	-	-	-	-
Stage 2	340	164	-	337	161	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	16	10	328	16	10	334	406	-	-	414	-	-
Mov Cap-2 Maneuver	77	75	-	79	74	-	-	-	-	-	-	-
Stage 1	105	158	-	108	160	-	-	-	-	-	-	-
Stage 2	327	160	-	328	158	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	28.2		42.6		0.1		0.1	
HCM LOS	D		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	406	-	-	77	328	106	414	-	-
HCM Lane V/C Ratio	0.028	-	-	0.015	0.007	0.096	0.019	-	-
HCM Control Delay (s)	14.1	-	-	52.5	16.1	42.6	13.9	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0	0.3	0.1	-	-

Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

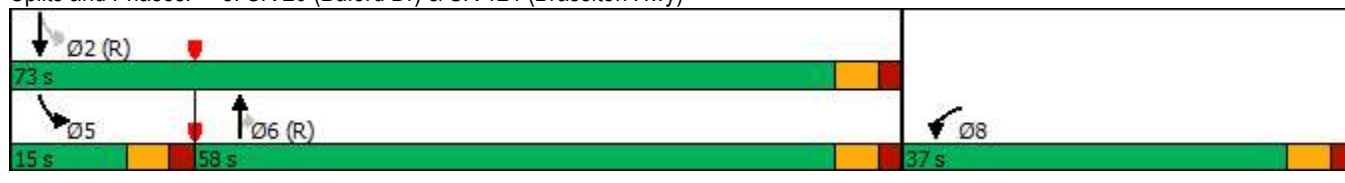
1a. Existing AM
09/30/2022

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	798	1322	361	59	1469
Future Volume (vph)	798	1322	361	59	1469
Lane Group Flow (vph)	867	1377	376	61	1530
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	37.0	58.0	58.0	15.0	73.0
Total Split (%)	33.6%	52.7%	52.7%	13.6%	66.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.91	0.77	0.38	0.32	0.71
Control Delay	52.7	14.7	1.7	13.2	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	14.7	1.7	13.2	16.8
Queue Length 50th (ft)	300	322	0	16	367
Queue Length 95th (ft)	#408	448	47	33	453
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	983	1781	982	221	2140
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	0.77	0.38	0.28	0.71

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

1a. Existing AM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	798	35	1322	361	59	1469
Future Volume (veh/h)	798	35	1322	361	59	1469
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1856	1796	1811	1767	1826
Adj Flow Rate, veh/h	865	0	1377	0	61	1530
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	3	7	6	9	5
Cap, veh/h	945		1864		333	2202
Arrive On Green	0.27	0.00	1.00	0.00	0.04	0.63
Sat Flow, veh/h	3563	1572	3503	1535	1682	3561
Grp Volume(v), veh/h	865	0	1377	0	61	1530
Grp Sat Flow(s),veh/h/ln	1781	1572	1706	1535	1682	1735
Q Serve(g_s), s	25.9	0.0	0.0	0.0	1.6	31.7
Cycle Q Clear(g_c), s	25.9	0.0	0.0	0.0	1.6	31.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	945		1864		333	2202
V/C Ratio(X)	0.92		0.74		0.18	0.69
Avail Cap(c_a), veh/h	1020		1864		414	2202
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.79	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	0.0	0.0	9.0	13.1
Incr Delay (d2), s/veh	11.9	0.0	2.1	0.0	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	0.0	0.5	0.0	0.6	11.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.1	0.0	2.1	0.0	9.3	15.0
LnGrp LOS	D		A		A	B
Approach Vol, veh/h	865		1377			1591
Approach Delay, s/veh	51.1		2.1			14.8
Approach LOS	D		A			B
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		75.3			9.7	65.6
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		67.5			9.5	52.5
Max Q Clear Time (g_c+I1), s		33.7			3.6	2.0
Green Ext Time (p_c), s		24.0			0.0	27.5

Intersection Summary						
HCM 6th Ctrl Delay			18.4			
HCM 6th LOS			B			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

1a. Existing AM
09/30/2022

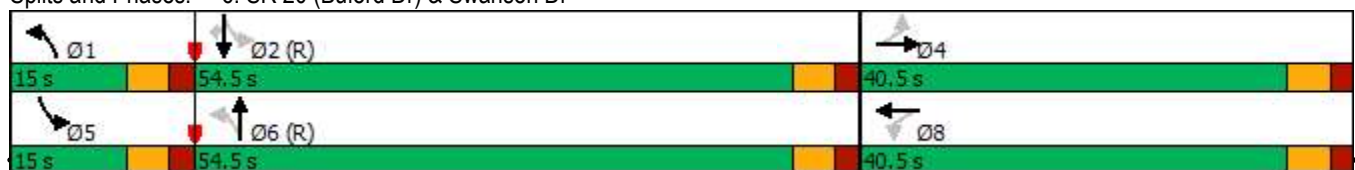


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↗	↙	↗	↗
Traffic Volume (vph)	62	26	87	49	118	1672	46	1762	65
Future Volume (vph)	62	26	87	49	118	1672	46	1762	65
Lane Group Flow (vph)	0	181	0	190	120	1772	47	1798	66
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.65		0.83	0.57	0.58	0.23	0.86	0.07
Control Delay		40.7		66.2	35.7	9.3	6.0	20.4	1.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.7		66.2	35.7	9.3	6.0	20.4	1.7
Queue Length 50th (ft)		87		119	42	121	4	455	1
Queue Length 95th (ft)		150		187	109	262	m10	#881	m5
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		459		399	234	3064	257	2091	968
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.39		0.48	0.51	0.58	0.18	0.86	0.07

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

1a. Existing AM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	26	89	87	49	50	118	1672	65	46	1762	65
Future Volume (veh/h)	62	26	89	87	49	50	118	1672	65	46	1762	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	63	27	91	89	50	51	120	1706	66	47	1798	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	2	2	2	7	3	2	2	2
Cap, veh/h	114	53	124	141	71	60	302	3149	122	251	2276	1015
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.65	0.65	0.07	1.00	1.00
Sat Flow, veh/h	420	319	748	561	432	364	1781	4844	187	1781	3554	1585
Grp Volume(v), veh/h	181	0	0	190	0	0	120	1151	621	47	1798	66
Grp Sat Flow(s),veh/h/ln	1487	0	0	1358	0	0	1781	1635	1763	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	0.0	2.5	20.9	20.9	1.0	0.0	0.0
Cycle Q Clear(g_c), s	12.6	0.0	0.0	15.2	0.0	0.0	2.5	20.9	20.9	1.0	0.0	0.0
Prop In Lane	0.35		0.50	0.47		0.27	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	290	0	0	272	0	0	302	2125	1146	251	2276	1015
V/C Ratio(X)	0.62	0.00	0.00	0.70	0.00	0.00	0.40	0.54	0.54	0.19	0.79	0.07
Avail Cap(c_a), veh/h	520	0	0	498	0	0	377	2125	1146	343	2276	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	43.4	0.0	0.0	44.6	0.0	0.0	5.9	10.4	10.4	7.8	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.2	0.0	0.0	0.8	1.0	1.8	0.2	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	5.2	0.0	0.0	0.8	6.6	7.4	0.3	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	0.0	0.0	47.8	0.0	0.0	6.7	11.4	12.2	8.0	1.5	0.1
LnGrp LOS	D	A	A	D	A	A	A	B	B	A	A	A
Approach Vol, veh/h		181			190			1892			1911	
Approach Delay, s/veh		45.6			47.8			11.4			1.6	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	75.9		23.7	9.3	77.0		23.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	4.5	2.0		14.6	3.0	22.9		17.2				
Green Ext Time (p_c), s	0.1	36.7		1.1	0.0	20.9		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				10.1								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

1a. Existing AM
09/30/2022

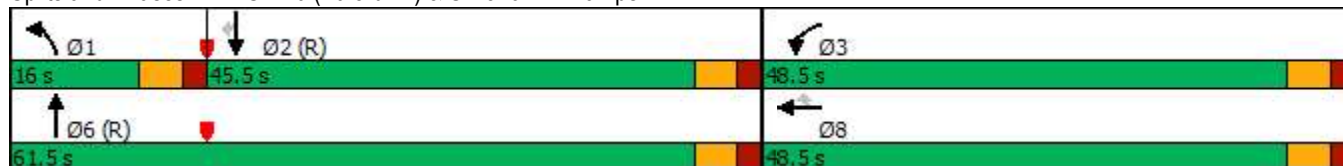


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑↑	↑↑↑↑	↖
Traffic Volume (vph)	107	108	99	291	1634	1180	923
Future Volume (vph)	107	108	99	291	1634	1180	923
Lane Group Flow (vph)	108	109	100	294	1651	1192	932
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	16.0	61.5	45.5	45.5
Total Split (%)	44.1%	44.1%	44.1%	14.5%	55.9%	41.4%	41.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.38	0.37	0.49	0.61	0.40	0.25	0.76
Control Delay	51.1	50.9	23.8	58.1	3.1	17.0	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	50.9	23.8	58.1	3.1	17.0	19.1
Queue Length 50th (ft)	38	38	14	114	82	133	305
Queue Length 95th (ft)	64	65	65	160	102	208	m558
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	482	4156	4729	1222
Starvation Cap Reductn	0	0	0	0	261	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.15	0.61	0.42	0.25	0.76

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

1a. Existing AM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	107	108	99	291	1634	0	0	1180	923
Future Volume (veh/h)	0	0	0	107	108	99	291	1634	0	0	1180	923
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				108	109	0	294	1651	0	0	1192	0
Peak Hour Factor				0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				202	207		330	4298	0	0	5274	
Arrive On Green				0.06	0.06	0.00	0.19	1.00	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				108	109	0	294	1651	0	0	1192	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.3	3.3	0.0	9.1	0.0	0.0	0.0	6.2	0.0
Cycle Q Clear(g_c), s				3.3	3.3	0.0	9.1	0.0	0.0	0.0	6.2	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				202	207		330	4298	0	0	5274	
V/C Ratio(X)				0.54	0.53		0.89	0.38	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				1351	1389		330	4298	0	0	5274	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.92	0.92	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.3	50.3	0.0	43.9	0.0	0.0	0.0	6.0	0.0
Incr Delay (d2), s/veh				2.2	2.1	0.0	23.2	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	1.5	0.0	4.5	0.1	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.5	52.4	0.0	67.1	0.2	0.0	0.0	6.1	0.0
LnGrp LOS				D	D		E	A	A	A	A	
Approach Vol, veh/h					217			1945			1192	
Approach Delay, s/veh					52.5			10.3			6.1	
Approach LOS					D			B			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	16.0	82.1				98.1		11.9				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	10.5	40.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	11.1	8.2				2.0		5.3				
Green Ext Time (p_c), s	0.0	17.0				34.0		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				11.6								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

1a. Existing AM
09/30/2022

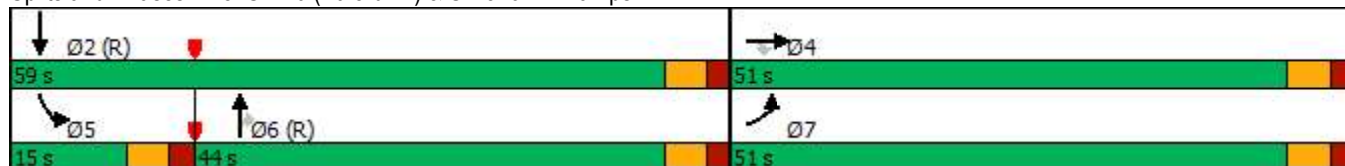


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↑↑	↷	↑↑↑↑	↷	↶↶	↑↑↑
Traffic Volume (vph)	364	128	174	1561	42	91	1196
Future Volume (vph)	364	128	174	1561	42	91	1196
Lane Group Flow (vph)	375	132	179	1609	43	94	1233
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	51.0	51.0	51.0	44.0	44.0	15.0	59.0
Total Split (%)	46.4%	46.4%	46.4%	40.0%	40.0%	13.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.68	0.23	0.56	0.34	0.04	0.36	0.33
Control Delay	49.9	40.4	29.9	10.5	0.7	68.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	40.4	29.9	10.5	0.7	68.2	6.2
Queue Length 50th (ft)	130	43	64	128	0	37	77
Queue Length 95th (ft)	171	68	131	174	5	65	69
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1420	1463	701	4791	1034	303	3763
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.09	0.26	0.34	0.04	0.31	0.33

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

1a. Existing AM
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	364	128	174	0	0	0	0	1561	42	91	1196	0
Future Volume (veh/h)	364	128	174	0	0	0	0	1561	42	91	1196	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	375	132	0				0	1609	0	94	1233	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	495	509					0	5029		148	3865	0
Arrive On Green	0.14	0.14	0.00				0.00	0.66	0.00	0.09	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	375	132	0				0	1609	0	94	1233	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	11.5	3.6	0.0				0.0	10.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	11.5	3.6	0.0				0.0	10.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	495	509					0	5029		148	3865	0
V/C Ratio(X)	0.76	0.26					0.00	0.32		0.63	0.32	0.00
Avail Cap(c_a), veh/h	1429	1470					0	5029		298	3865	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	45.3	41.9	0.0				0.0	7.9	0.0	49.4	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.0				0.0	0.2	0.0	4.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.6	0.0				0.0	2.8	0.0	1.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	42.2	0.0				0.0	8.1	0.0	53.8	0.2	0.0
LnGrp LOS	D	D					A	A		D	A	A
Approach Vol, veh/h		507						1609			1327	
Approach Delay, s/veh		46.3						8.1			4.0	
Approach LOS		D						A			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		88.8		21.2	10.2	78.5						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		53.5		45.5	9.5	38.5						
Max Q Clear Time (g_c+I1), s		2.0		13.5	4.9	12.0						
Green Ext Time (p_c), s		22.4		2.3	0.1	20.0						
Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

1b. Existing PM
09/30/2022

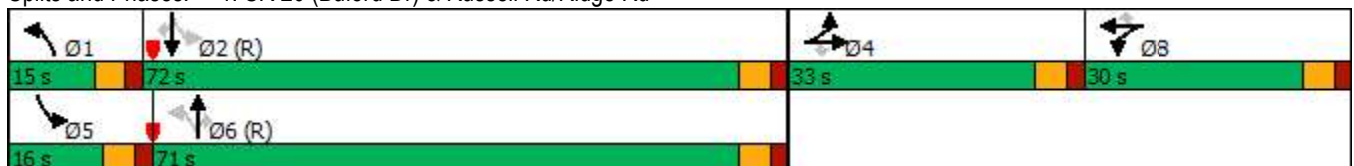


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	194	276	61	117	67	58	1206	120	131	1282	137
Future Volume (vph)	194	276	61	117	67	58	1206	120	131	1282	137
Lane Group Flow (vph)	213	303	67	264	74	64	1325	132	144	1409	151
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	33.0	33.0	33.0	30.0	30.0	15.0	71.0	71.0	16.0	72.0	72.0
Total Split (%)	22.0%	22.0%	22.0%	20.0%	20.0%	10.0%	47.3%	47.3%	10.7%	48.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.68	0.92	0.19	0.92	0.22	0.45	0.83	0.17	0.83	0.84	0.18
Control Delay	69.4	92.9	4.2	97.6	5.9	29.3	42.6	8.4	68.3	40.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	92.9	4.2	97.6	5.9	29.3	42.6	8.4	68.3	40.8	5.0
Queue Length 50th (ft)	196	293	0	256	0	29	607	19	88	654	6
Queue Length 95th (ft)	290	#463	18	#421	26	61	710	61	#214	779	48
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	324	341	370	296	340	161	1590	765	176	1683	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.89	0.18	0.89	0.22	0.40	0.83	0.17	0.82	0.84	0.18

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

1b. Existing PM
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	276	61	123	117	67	58	1206	120	131	1282	137
Future Volume (veh/h)	194	276	61	123	117	67	58	1206	120	131	1282	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	213	303	67	135	129	74	64	1325	132	144	1409	151
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	3	2
Cap, veh/h	313	329	279	147	140	249	153	1651	736	201	1725	776
Arrive On Green	0.18	0.18	0.18	0.16	0.16	0.16	0.03	0.46	0.46	0.06	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	933	891	1585	1781	3554	1585	1781	3526	1585
Grp Volume(v), veh/h	213	303	67	264	0	74	64	1325	132	144	1409	151
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1824	0	1585	1781	1777	1585	1781	1763	1585
Q Serve(g_s), s	16.8	23.9	5.5	21.4	0.0	6.2	2.8	47.7	7.3	6.3	51.0	8.1
Cycle Q Clear(g_c), s	16.8	23.9	5.5	21.4	0.0	6.2	2.8	47.7	7.3	6.3	51.0	8.1
Prop In Lane	1.00		1.00	0.51		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	313	329	279	287	0	249	153	1651	736	201	1725	776
V/C Ratio(X)	0.68	0.92	0.24	0.92	0.00	0.30	0.42	0.80	0.18	0.72	0.82	0.19
Avail Cap(c_a), veh/h	327	343	291	298	0	259	210	1651	736	226	1725	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	60.8	53.2	62.3	0.0	55.9	29.0	34.3	23.5	30.9	32.6	21.6
Incr Delay (d2), s/veh	5.4	28.9	0.4	31.7	0.0	0.7	1.8	4.2	0.5	9.2	4.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	13.9	2.2	12.3	0.0	2.5	1.2	20.6	2.8	3.0	21.6	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	89.7	53.6	93.9	0.0	56.5	30.9	38.5	24.0	40.1	37.0	22.2
LnGrp LOS	E	F	D	F	A	E	C	D	C	D	D	C
Approach Vol, veh/h		583			338			1521			1704	
Approach Delay, s/veh		75.9			85.8			36.9			35.9	
Approach LOS		E			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	78.9		31.9	13.9	75.2		29.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	66.5		27.5	10.5	65.5		24.5				
Max Q Clear Time (g_c+I1), s	4.8	53.0		25.9	8.3	49.7		23.4				
Green Ext Time (p_c), s	0.0	11.1		0.5	0.1	12.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			46.0									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	1.5						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	12	146	53	1496	0	1335	28
Future Vol, veh/h	12	146	53	1496	0	1335	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	94	94	94	94	92	94	94
Heavy Vehicles, %	2	2	2	2	2	3	2
Mvmt Flow	13	155	56	1591	0	1420	30

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	2328	710	1420	0	1591	-	0
Stage 1	1420	-	-	-	-	-	-
Stage 2	908	-	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	31	376	475	-	138	-	-
Stage 1	189	-	-	-	-	-	-
Stage 2	354	-	-	-	-	-	-
Platoon blocked, %				-	-	-	-
Mov Cap-1 Maneuver	27	376	475	-	138	-	-
Mov Cap-2 Maneuver	27	-	-	-	-	-	-
Stage 1	167	-	-	-	-	-	-
Stage 2	354	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.8	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	475	-	356	138	-	-
HCM Lane V/C Ratio	0.119	-	0.472	-	-	-
HCM Control Delay (s)	13.6	-	23.8	0	-	-
HCM Lane LOS	B	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	2.4	0	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	7	0	3	8	0	2	5	1540	6	4	1477	0
Future Vol, veh/h	7	0	3	8	0	2	5	1540	6	4	1477	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	1	2	2	3	2
Mvmt Flow	7	0	3	9	0	2	5	1638	6	4	1571	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2408	3227	786	2442	3227	819	1571	0	0	1638	0	0
Stage 1	1579	1579	-	1648	1648	-	-	-	-	-	-	-
Stage 2	829	1648	-	794	1579	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	17	9	335	16	9	319	416	-	-	392	-	-
Stage 1	114	168	-	103	155	-	-	-	-	-	-	-
Stage 2	331	155	-	348	168	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	17	9	335	16	9	319	416	-	-	392	-	-
Mov Cap-2 Maneuver	82	76	-	76	76	-	-	-	-	-	-	-
Stage 1	113	166	-	102	153	-	-	-	-	-	-	-
Stage 2	325	153	-	341	166	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42	47.6	0	0
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	416	-	-	82	335	95	392	-	-
HCM Lane V/C Ratio	0.013	-	-	0.091	0.01	0.112	0.011	-	-
HCM Control Delay (s)	13.8	-	-	53.2	15.9	47.6	14.3	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.4	0	-	-

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	13	0	3	8	0	4	5	1536	9	4	1484	0
Future Vol, veh/h	13	0	3	8	0	4	5	1536	9	4	1484	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	1	11	2	3	2
Mvmt Flow	14	0	3	8	0	4	5	1617	9	4	1562	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2389	3197	781	2416	3197	809	1562	0	0	1617	0	0
Stage 1	1570	1570	-	1627	1627	-	-	-	-	-	-	-
Stage 2	819	1627	-	789	1570	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	18	10	338	17	10	323	419	-	-	399	-	-
Stage 1	116	170	-	106	159	-	-	-	-	-	-	-
Stage 2	336	159	-	350	170	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	17	10	338	17	10	323	419	-	-	399	-	-
Mov Cap-2 Maneuver	83	78	-	79	78	-	-	-	-	-	-	-
Stage 1	115	168	-	105	157	-	-	-	-	-	-	-
Stage 2	328	157	-	343	168	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	49.1	43.5	0	0
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	419	-	-	83	338	106	399	-	-
HCM Lane V/C Ratio	0.013	-	-	0.165	0.009	0.119	0.011	-	-
HCM Control Delay (s)	13.7	-	-	56.8	15.8	43.5	14.1	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0.4	0	-	-

Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

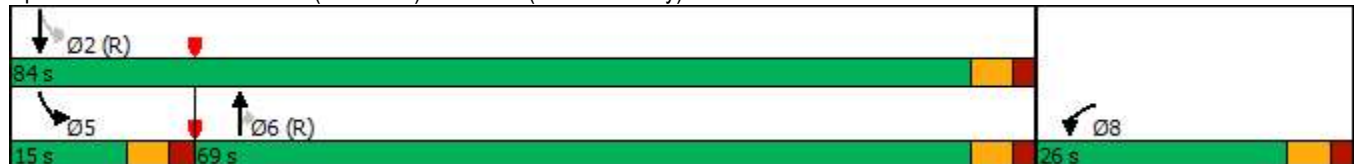
1b. Existing PM
09/30/2022

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	365	1433	798	72	1427
Future Volume (vph)	365	1433	798	72	1427
Lane Group Flow (vph)	417	1462	814	73	1456
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	26.0	69.0	69.0	15.0	84.0
Total Split (%)	23.6%	62.7%	62.7%	13.6%	76.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.75	0.64	0.62	0.31	0.56
Control Delay	51.3	2.7	2.4	7.8	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	2.7	2.4	7.8	7.8
Queue Length 50th (ft)	141	30	0	12	212
Queue Length 95th (ft)	191	39	46	27	285
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	643	2286	1311	274	2587
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.64	0.62	0.27	0.56

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

1b. Existing PM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT		TT	T	T	TT
Traffic Volume (veh/h)	365	44	1433	798	72	1427
Future Volume (veh/h)	365	44	1433	798	72	1427
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1856
Adj Flow Rate, veh/h	414	0	1462	0	73	1456
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	6	3
Cap, veh/h	494		2384		371	2684
Arrive On Green	0.14	0.00	1.00	0.00	0.04	0.76
Sat Flow, veh/h	3563	1585	3647	1585	1725	3618
Grp Volume(v), veh/h	414	0	1462	0	73	1456
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1725	1763
Q Serve(g_s), s	12.5	0.0	0.0	0.0	1.3	18.5
Cycle Q Clear(g_c), s	12.5	0.0	0.0	0.0	1.3	18.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	494		2384		371	2684
V/C Ratio(X)	0.84		0.61		0.20	0.54
Avail Cap(c_a), veh/h	664		2384		450	2684
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.48	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	0.0	0.0	4.2	5.3
Incr Delay (d2), s/veh	7.1	0.0	0.6	0.0	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.2	0.0	0.4	4.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	0.0	0.6	0.0	4.5	6.1
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	414		1462			1529
Approach Delay, s/veh	53.3		0.6			6.0
Approach LOS	D		A			A
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		89.3			10.0	79.3
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		78.5			9.5	63.5
Max Q Clear Time (g_c+I1), s		20.5			3.3	2.0
Green Ext Time (p_c), s		32.0			0.1	33.1

Intersection Summary

HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

1b. Existing PM
09/30/2022

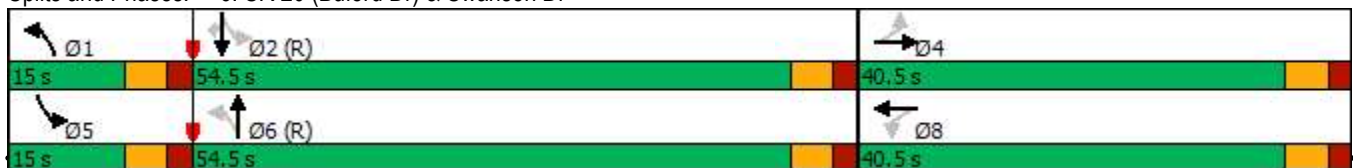


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↖	↗	↖	↗	↗
Traffic Volume (vph)	84	14	52	15	76	2412	59	1643	33
Future Volume (vph)	84	14	52	15	76	2412	59	1643	33
Lane Group Flow (vph)	0	188	0	141	81	2687	63	1748	35
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.80		0.57	0.42	0.81	0.36	0.77	0.03
Control Delay		57.9		36.2	21.0	16.8	17.3	15.6	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		57.9		36.2	21.0	16.8	17.3	15.6	0.2
Queue Length 50th (ft)		103		61	11	454	8	291	0
Queue Length 95th (ft)		170		117	60	#661	m31	#781	m0
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		433		444	231	3317	219	2282	1049
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.43		0.32	0.35	0.81	0.29	0.77	0.03

Intersection Summary





















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

1b. Existing PM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	14	79	52	15	66	76	2412	114	59	1643	33
Future Volume (veh/h)	84	14	79	52	15	66	76	2412	114	59	1643	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	15	84	55	16	70	81	2566	121	63	1748	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	2	2	2	2
Cap, veh/h	144	28	100	116	45	114	316	3310	154	166	2325	1037
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.04	0.66	0.66	0.08	1.00	1.00
Sat Flow, veh/h	619	182	647	459	290	738	1795	5039	235	1781	3554	1585
Grp Volume(v), veh/h	188	0	0	141	0	0	81	1738	949	63	1748	35
Grp Sat Flow(s),veh/h/ln	1449	0	0	1487	0	0	1795	1716	1843	1781	1777	1585
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	0.0	1.6	38.8	40.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	13.9	0.0	0.0	9.5	0.0	0.0	1.6	38.8	40.0	1.2	0.0	0.0
Prop In Lane	0.47		0.45	0.39		0.50	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	272	0	0	275	0	0	316	2254	1211	166	2325	1037
V/C Ratio(X)	0.69	0.00	0.00	0.51	0.00	0.00	0.26	0.77	0.78	0.38	0.75	0.03
Avail Cap(c_a), veh/h	511	0	0	518	0	0	396	2254	1211	251	2325	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	45.1	0.0	0.0	43.2	0.0	0.0	5.3	13.1	13.3	19.6	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.5	0.0	0.0	0.4	2.6	5.1	1.1	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0	3.6	0.0	0.0	0.5	13.0	15.3	1.0	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	0.0	0.0	44.7	0.0	0.0	5.8	15.7	18.5	20.7	1.8	0.0
LnGrp LOS	D	A	A	D	A	A	A	B	B	C	A	A
Approach Vol, veh/h		188			141			2768			1846	
Approach Delay, s/veh		48.3			44.7			16.4			2.4	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	77.5		22.5	9.8	77.8		22.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	3.6	2.0		15.9	3.2	42.0		11.5				
Green Ext Time (p_c), s	0.1	35.4		1.1	0.0	6.9		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				13.2								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

1b. Existing PM
09/30/2022

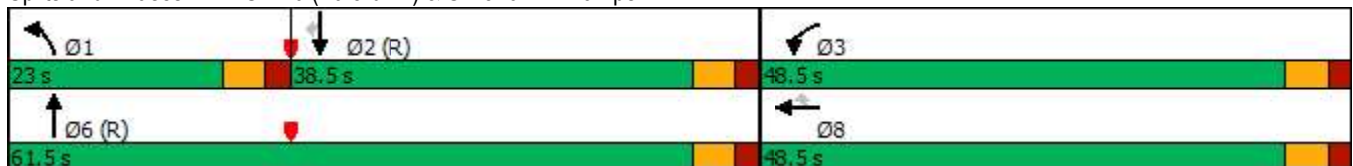


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	99	74	112	334	1671	1270	492
Future Volume (vph)	99	74	112	334	1671	1270	492
Lane Group Flow (vph)	102	76	115	344	1723	1309	507
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	23.0	61.5	38.5	38.5
Total Split (%)	44.1%	44.1%	44.1%	20.9%	55.9%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.35	0.25	0.56	0.68	0.42	0.28	0.43
Control Delay	49.8	48.0	28.4	43.5	3.4	19.5	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	49.8	48.0	28.4	43.5	3.5	19.5	10.4
Queue Length 50th (ft)	36	26	24	107	81	155	100
Queue Length 95th (ft)	60	48	78	157	137	247	267
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	566	4142	4659	1171
Starvation Cap Reductn	0	0	0	0	697	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.17	0.61	0.50	0.28	0.43

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

1b. Existing PM
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	99	74	112	334	1671	0	0	1270	492
Future Volume (veh/h)	0	0	0	99	74	112	334	1671	0	0	1270	492
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				102	76	0	344	1723	0	0	1309	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				188	193		408	4318	0	0	5133	
Arrive On Green				0.05	0.05	0.00	0.24	1.00	0.00	0.00	0.68	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				102	76	0	344	1723	0	0	1309	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.2	2.3	0.0	10.4	0.0	0.0	0.0	7.4	0.0
Cycle Q Clear(g_c), s				3.2	2.3	0.0	10.4	0.0	0.0	0.0	7.4	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				188	193		408	4318	0	0	5133	
V/C Ratio(X)				0.54	0.39		0.84	0.40	0.00	0.00	0.26	
Avail Cap(c_a), veh/h				1351	1389		550	4318	0	0	5133	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.83	0.83	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.7	50.3	0.0	41.0	0.0	0.0	0.0	6.9	0.0
Incr Delay (d2), s/veh				2.4	1.3	0.0	7.4	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	1.0	0.0	4.2	0.1	0.0	0.0	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.1	51.6	0.0	48.4	0.2	0.0	0.0	7.0	0.0
LnGrp LOS				D	D		D	A	A	A	A	
Approach Vol, veh/h					178			2067			1309	
Approach Delay, s/veh					52.5			8.2			7.0	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.5	80.0				98.5		11.5				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	17.5	33.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	12.4	9.4				2.0		5.2				
Green Ext Time (p_c), s	0.5	15.4				35.9		0.8				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

1b. Existing PM
09/30/2022

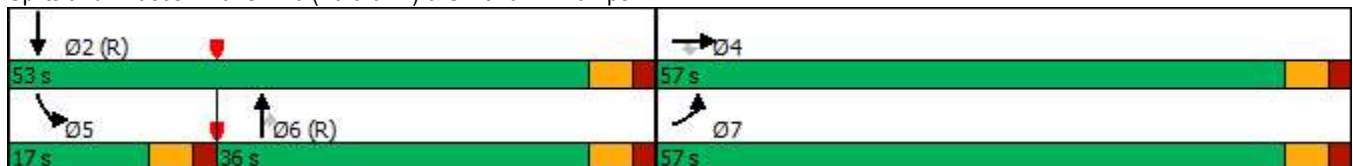


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↗↗	↘	↑↑↑↑	↗	↘↘	↘↘↘
Traffic Volume (vph)	864	754	327	1104	15	103	1267
Future Volume (vph)	864	754	327	1104	15	103	1267
Lane Group Flow (vph)	882	769	334	1127	15	105	1293
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	57.0	57.0	57.0	36.0	36.0	17.0	53.0
Total Split (%)	51.8%	51.8%	51.8%	32.7%	32.7%	15.5%	48.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.79	0.67	0.59	0.33	0.02	0.39	0.44
Control Delay	39.1	34.7	26.9	21.2	0.1	70.2	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	34.7	26.9	21.2	0.1	70.2	10.5
Queue Length 50th (ft)	290	246	150	124	0	35	87
Queue Length 95th (ft)	322	274	215	177	0	56	76
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1607	1656	783	3367	750	358	2927
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.46	0.43	0.33	0.02	0.29	0.44

Intersection Summary




























Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

1b. Existing PM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						   		 	  	
Traffic Volume (veh/h)	864	754	327	0	0	0	0	1104	15	103	1267	0
Future Volume (veh/h)	864	754	327	0	0	0	0	1104	15	103	1267	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	882	769	0				0	1127	0	105	1293	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1167	1201					0	3526		161	2870	0
Arrive On Green	0.34	0.34	0.00				0.00	0.47	0.00	0.09	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	882	769	0				0	1127	0	105	1293	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	25.0	20.1	0.0				0.0	10.3	0.0	3.2	0.0	0.0
Cycle Q Clear(g_c), s	25.0	20.1	0.0				0.0	10.3	0.0	3.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1167	1201					0	3526		161	2870	0
V/C Ratio(X)	0.76	0.64					0.00	0.32		0.65	0.45	0.00
Avail Cap(c_a), veh/h	1618	1664					0	3526		361	2870	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	32.4	30.8	0.0				0.0	18.5	0.0	49.0	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.6	0.0				0.0	0.2	0.0	4.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	8.6	0.0				0.0	3.4	0.0	1.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	31.3	0.0				0.0	18.7	0.0	53.3	0.5	0.0
LnGrp LOS	C	C					A	B		D	A	A
Approach Vol, veh/h		1651						1127			1398	
Approach Delay, s/veh		32.6						18.7			4.5	
Approach LOS		C						B			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		67.3		42.7	10.6	56.7						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		47.5		51.5	11.5	30.5						
Max Q Clear Time (g_c+I1), s		2.0		27.0	5.2	12.3						
Green Ext Time (p_c), s		22.6		10.2	0.1	11.3						
Intersection Summary												
HCM 6th Ctrl Delay			19.4									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Future “No-Build” Intersection Analysis

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2a. No Build AM
09/30/2022

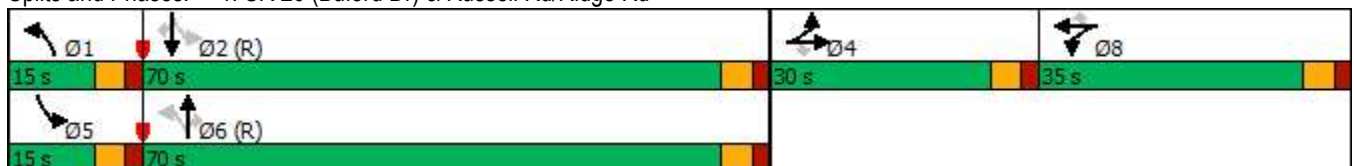


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	211	82	43	177	63	53	1020	50	81	1238	202
Future Volume (vph)	211	82	43	177	63	53	1020	50	81	1238	202
Lane Group Flow (vph)	227	88	46	325	68	57	1097	54	87	1331	217
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	30.0	30.0	30.0	35.0	35.0	15.0	70.0	70.0	15.0	70.0	70.0
Total Split (%)	20.0%	20.0%	20.0%	23.3%	23.3%	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.85	0.32	0.15	0.93	0.18	0.38	0.71	0.07	0.41	0.81	0.25
Control Delay	89.3	59.5	1.0	91.6	4.2	24.2	37.0	0.4	22.9	40.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	59.5	1.0	91.6	4.2	24.2	37.0	0.4	22.9	40.2	4.4
Queue Length 50th (ft)	216	77	0	314	0	26	470	0	41	617	4
Queue Length 95th (ft)	#339	133	0	#492	19	51	561	2	71	740	55
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	291	304	333	362	391	172	1537	775	225	1636	870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.29	0.14	0.90	0.17	0.33	0.71	0.07	0.39	0.81	0.25

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2a. No Build AM
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	82	43	126	177	63	53	1020	50	81	1238	202
Future Volume (veh/h)	211	82	43	126	177	63	53	1020	50	81	1238	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1826	1870	1885	1870	1841	1796	1870	1870	1826	1885
Adj Flow Rate, veh/h	227	88	46	135	190	68	57	1097	54	87	1331	217
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	5	2	1	2	4	7	2	2	5	1
Cap, veh/h	253	263	218	145	204	299	160	1661	771	233	1712	788
Arrive On Green	0.14	0.14	0.14	0.19	0.19	0.19	0.03	0.49	0.49	0.04	0.49	0.49
Sat Flow, veh/h	1795	1870	1547	767	1080	1585	1753	3413	1585	1781	3469	1598
Grp Volume(v), veh/h	227	88	46	325	0	68	57	1097	54	87	1331	217
Grp Sat Flow(s),veh/h/ln	1795	1870	1547	1847	0	1585	1753	1706	1585	1781	1735	1598
Q Serve(g_s), s	18.7	6.4	3.9	26.0	0.0	5.5	2.4	36.5	2.7	3.7	47.3	11.9
Cycle Q Clear(g_c), s	18.7	6.4	3.9	26.0	0.0	5.5	2.4	36.5	2.7	3.7	47.3	11.9
Prop In Lane	1.00		1.00	0.42		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	263	218	349	0	299	160	1661	771	233	1712	788
V/C Ratio(X)	0.90	0.33	0.21	0.93	0.00	0.23	0.36	0.66	0.07	0.37	0.78	0.28
Avail Cap(c_a), veh/h	293	305	253	363	0	312	218	1661	771	280	1712	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.4	58.1	57.1	59.9	0.0	51.6	26.7	29.1	20.5	23.3	31.2	22.3
Incr Delay (d2), s/veh	25.8	0.7	0.5	30.0	0.0	0.4	1.3	2.1	0.2	1.0	3.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	3.1	1.6	14.9	0.0	2.2	1.0	14.7	1.0	1.5	19.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.2	58.8	57.5	89.9	0.0	52.0	28.1	31.2	20.6	24.3	34.8	23.1
LnGrp LOS	F	E	E	F	A	D	C	C	C	C	C	C
Approach Vol, veh/h		361			393			1208			1635	
Approach Delay, s/veh		77.8			83.3			30.6			32.7	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	79.5		26.6	11.1	78.5		33.8				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	64.5		24.5	9.5	64.5		29.5				
Max Q Clear Time (g_c+I1), s	4.4	49.3		20.7	5.7	38.5		28.0				
Green Ext Time (p_c), s	0.0	12.1		0.5	0.1	14.5		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				42.0								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	17.4						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	23	132	97	1355	0	1341	40
Future Vol, veh/h	23	132	97	1355	0	1341	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	92	90	90
Heavy Vehicles, %	2	2	2	7	2	6	2
Mvmt Flow	26	147	108	1506	0	1490	44

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2459	745	1490	0	1506	- 0
Stage 1	1490	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-
Pot Cap-1 Maneuver	~ 25	357	447	-	156	-
Stage 1	173	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 19	357	447	-	156	-
Mov Cap-2 Maneuver	~ 19	-	-	-	-	-
Stage 1	131	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	325.7	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	447	-	116	156	-	-
HCM Lane V/C Ratio	0.241	-	1.485	-	-	-
HCM Control Delay (s)	15.6	-	325.7	0	-	-
HCM Lane LOS	C	-	F	A	-	-
HCM 95th %tile Q(veh)	0.9	-	12.3	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	1	0	2	4	0	4	4	1447	1	6	1463	4
Future Vol, veh/h	1	0	2	4	0	4	4	1447	1	6	1463	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	5	0	5	5	1644	1	7	1663	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2509	3331	832	2500	3331	822	1663	0	0	1644	0	0
Stage 1	1677	1677	-	1654	1654	-	-	-	-	-	-	-
Stage 2	832	1654	-	846	1677	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	14	8	312	15	8	317	383	-	-	390	-	-
Stage 1	99	150	-	102	154	-	-	-	-	-	-	-
Stage 2	330	154	-	323	150	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	8	312	15	8	317	383	-	-	390	-	-
Mov Cap-2 Maneuver	72	70	-	74	71	-	-	-	-	-	-	-
Stage 1	98	147	-	101	152	-	-	-	-	-	-	-
Stage 2	321	152	-	315	147	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.7		30.9		0		0.1	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	383	-	-	72	312	148	390	-	-
HCM Lane V/C Ratio	0.012	-	-	0.016	0.007	0.061	0.017	-	-
HCM Control Delay (s)	14.5	-	-	55.8	16.6	30.9	14.4	-	-
HCM Lane LOS	B	-	-	F	C	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	1	0	2	6	0	3	10	1434	1	7	1455	9
Future Vol, veh/h	1	0	2	6	0	3	10	1434	1	7	1455	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	7	0	3	11	1630	1	8	1653	10

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2506	3321	827	2495	3321	815	1653	0	0	1630	0	0
Stage 1	1669	1669	-	1652	1652	-	-	-	-	-	-	-
Stage 2	837	1652	-	843	1669	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	14	8	315	15	8	321	386	-	-	394	-	-
Stage 1	100	151	-	103	154	-	-	-	-	-	-	-
Stage 2	327	154	-	325	151	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	8	315	14	8	321	386	-	-	394	-	-
Mov Cap-2 Maneuver	71	70	-	73	69	-	-	-	-	-	-	-
Stage 1	97	148	-	100	150	-	-	-	-	-	-	-
Stage 2	314	150	-	316	148	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.8		46		0.1		0.1	
HCM LOS	D		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	386	-	-	71	315	98	394	-	-
HCM Lane V/C Ratio	0.029	-	-	0.016	0.007	0.104	0.02	-	-
HCM Control Delay (s)	14.6	-	-	56.5	16.5	46	14.3	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0	0.3	0.1	-	-

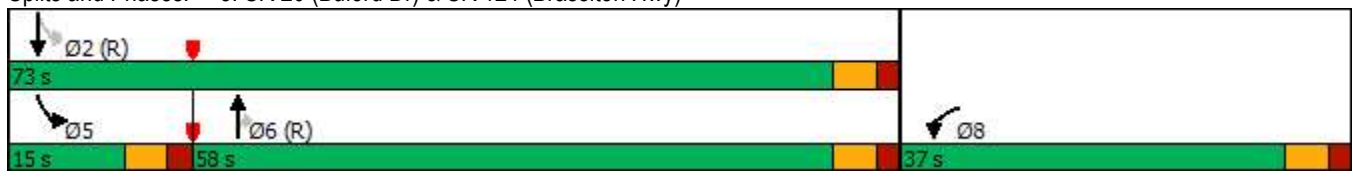
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	825	1367	373	61	1519
Future Volume (vph)	825	1367	373	61	1519
Lane Group Flow (vph)	897	1424	389	64	1582
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	37.0	58.0	58.0	15.0	73.0
Total Split (%)	33.6%	52.7%	52.7%	13.6%	66.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.93	0.81	0.40	0.36	0.74
Control Delay	55.3	16.0	1.9	14.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	16.0	1.9	14.2	17.7
Queue Length 50th (ft)	313	334	0	17	391
Queue Length 95th (ft)	#431	476	50	34	481
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	983	1768	983	210	2130
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.81	0.40	0.30	0.74

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

2a. No Build AM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	825	36	1367	373	61	1519
Future Volume (veh/h)	825	36	1367	373	61	1519
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1856	1796	1811	1767	1826
Adj Flow Rate, veh/h	894	0	1424	0	64	1582
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	3	7	6	9	5
Cap, veh/h	968		1841		323	2180
Arrive On Green	0.27	0.00	1.00	0.00	0.04	0.63
Sat Flow, veh/h	3563	1572	3503	1535	1682	3561
Grp Volume(v), veh/h	894	0	1424	0	64	1582
Grp Sat Flow(s),veh/h/ln	1781	1572	1706	1535	1682	1735
Q Serve(g_s), s	26.8	0.0	0.0	0.0	1.8	34.3
Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	1.8	34.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	968		1841		323	2180
V/C Ratio(X)	0.92		0.77		0.20	0.73
Avail Cap(c_a), veh/h	1020		1841		403	2180
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.76	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	0.0	0.0	0.0	9.3	14.0
Incr Delay (d2), s/veh	13.2	0.0	2.5	0.0	0.3	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	0.0	0.6	0.0	0.6	12.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.1	0.0	2.5	0.0	9.6	16.1
LnGrp LOS	D		A		A	B
Approach Vol, veh/h	894		1424			1646
Approach Delay, s/veh	52.1		2.5			15.9
Approach LOS	D		A			B
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		74.6			9.8	64.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		67.5			9.5	52.5
Max Q Clear Time (g_c+I1), s		36.3			3.8	2.0
Green Ext Time (p_c), s		23.4			0.0	28.8

Intersection Summary						
HCM 6th Ctrl Delay			19.2			
HCM 6th LOS			B			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

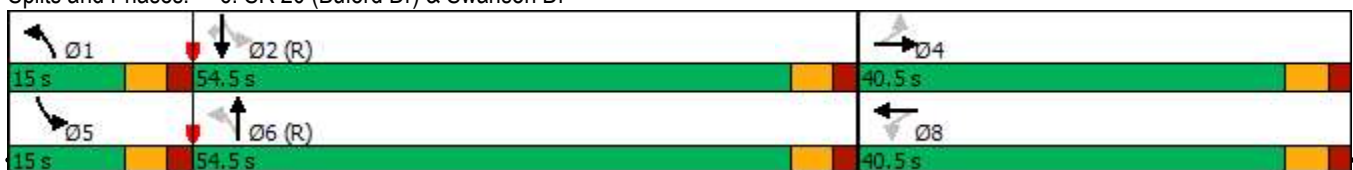


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕↕↕	↙	↕↕	↗
Traffic Volume (vph)	64	27	90	51	122	1729	48	1822	67
Future Volume (vph)	64	27	90	51	122	1729	48	1822	67
Lane Group Flow (vph)	0	187	0	197	124	1832	49	1859	68
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.66		0.83	0.58	0.60	0.25	0.90	0.07
Control Delay		40.6		65.9	36.1	9.8	6.6	22.8	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.6		65.9	36.1	9.8	6.6	22.8	1.9
Queue Length 50th (ft)		91		124	44	130	5	533	1
Queue Length 95th (ft)		154		192	112	271	m11	#941	m4
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		458		398	236	3031	246	2063	956
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		0.49	0.53	0.60	0.20	0.90	0.07

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

2a. No Build AM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	27	92	90	51	52	122	1729	67	48	1822	67
Future Volume (veh/h)	64	27	92	90	51	52	122	1729	67	48	1822	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	65	28	94	92	52	53	124	1764	68	49	1859	68
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	2	2	2	7	3	2	2	2
Cap, veh/h	116	54	128	144	74	62	291	3115	120	239	2252	1004
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.07	1.00	1.00
Sat Flow, veh/h	418	317	743	557	428	362	1781	4845	187	1781	3554	1585
Grp Volume(v), veh/h	187	0	0	197	0	0	124	1190	642	49	1859	68
Grp Sat Flow(s),veh/h/ln	1479	0	0	1347	0	0	1781	1635	1763	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	2.6	22.5	22.5	1.0	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0	15.9	0.0	0.0	2.6	22.5	22.5	1.0	0.0	0.0
Prop In Lane	0.35		0.50	0.47		0.27	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	298	0	0	280	0	0	291	2102	1133	239	2252	1004
V/C Ratio(X)	0.63	0.00	0.00	0.70	0.00	0.00	0.43	0.57	0.57	0.20	0.83	0.07
Avail Cap(c_a), veh/h	518	0	0	495	0	0	366	2102	1133	330	2252	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	42.9	0.0	0.0	44.2	0.0	0.0	6.1	11.0	11.0	8.5	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.2	0.0	0.0	1.0	1.1	2.1	0.2	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	5.4	0.0	0.0	0.9	7.2	8.1	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	0.0	0.0	47.5	0.0	0.0	7.1	12.1	13.1	8.7	1.8	0.1
LnGrp LOS	D	A	A	D	A	A	A	B	B	A	A	A
Approach Vol, veh/h		187			197			1956			1976	
Approach Delay, s/veh		45.1			47.5			12.1			1.9	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	75.2		24.4	9.4	76.2		24.4				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	4.6	2.0		15.1	3.0	24.5		17.9				
Green Ext Time (p_c), s	0.1	37.8		1.1	0.0	20.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.5								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

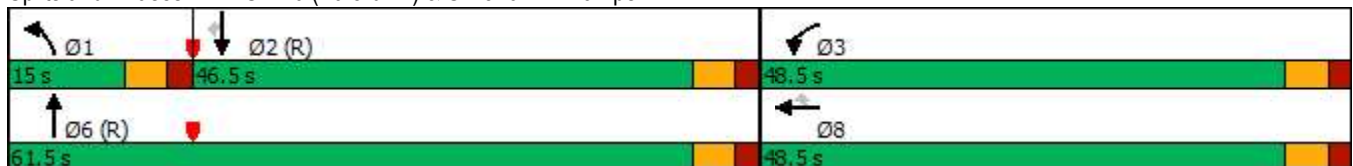


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↑↑	↗	↖↖	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	111	112	102	301	1690	1220	954
Future Volume (vph)	111	112	102	301	1690	1220	954
Lane Group Flow (vph)	112	113	103	304	1707	1232	964
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	15.0	61.5	46.5	46.5
Total Split (%)	44.1%	44.1%	44.1%	13.6%	55.9%	42.3%	42.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	0.38	0.50	0.57	0.41	0.27	0.80
Control Delay	51.1	50.8	24.5	57.3	3.2	18.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	50.8	24.5	57.3	3.3	18.2	21.0
Queue Length 50th (ft)	39	40	16	118	93	140	343
Queue Length 95th (ft)	65	67	68	164	110	m212	m559
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	534	4150	4606	1207
Starvation Cap Reductn	0	0	0	0	172	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.15	0.57	0.43	0.27	0.80

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
7: SR 20 (Buford Dr) & SR 316 WB Ramps

2a. No Build AM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	111	112	102	301	1690	0	0	1220	954
Future Volume (veh/h)	0	0	0	111	112	102	301	1690	0	0	1220	954
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				112	113	0	304	1707	0	0	1232	0
Peak Hour Factor				0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				207	213		298	4290	0	0	5331	
Arrive On Green				0.06	0.06	0.00	0.17	1.00	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				112	113	0	304	1707	0	0	1232	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.3	0.0
Cycle Q Clear(g_c), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				207	213		298	4290	0	0	5331	
V/C Ratio(X)				0.54	0.53		1.02	0.40	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				1351	1389		298	4290	0	0	5331	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.2	50.2	0.0	45.5	0.0	0.0	0.0	5.8	0.0
Incr Delay (d2), s/veh				2.2	2.1	0.0	54.5	0.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	1.6	0.0	5.8	0.1	0.0	0.0	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.4	52.3	0.0	100.0	0.3	0.0	0.0	5.9	0.0
LnGrp LOS				D	D		F	A	A	A	A	
Approach Vol, veh/h					225			2011			1232	
Approach Delay, s/veh					52.3			15.3			5.9	
Approach LOS					D			B			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	82.9				97.9		12.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	11.5	8.3				2.0		5.5				
Green Ext Time (p_c), s	0.0	17.9				35.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				14.4								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

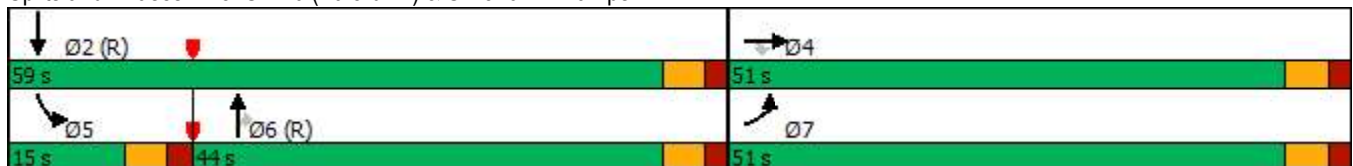


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↗↗	↘	↑↑↑↑	↗	↖↖	↘↘↘
Traffic Volume (vph)	376	132	180	1614	43	94	1237
Future Volume (vph)	376	132	180	1614	43	94	1237
Lane Group Flow (vph)	388	136	186	1664	44	97	1275
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	51.0	51.0	51.0	44.0	44.0	15.0	59.0
Total Split (%)	46.4%	46.4%	46.4%	40.0%	40.0%	13.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.69	0.23	0.57	0.36	0.04	0.37	0.34
Control Delay	49.8	40.0	30.7	11.6	0.8	67.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	40.0	30.7	11.6	0.8	67.1	6.5
Queue Length 50th (ft)	134	44	69	135	0	38	83
Queue Length 95th (ft)	176	70	136	184	5	67	71
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1420	1463	701	4597	995	303	3744
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.09	0.27	0.36	0.04	0.32	0.34

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

2a. No Build AM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	132	180	0	0	0	0	1614	43	94	1237	0
Future Volume (veh/h)	376	132	180	0	0	0	0	1614	43	94	1237	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	388	136	0				0	1664	0	97	1275	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	509	524					0	4991		151	3843	0
Arrive On Green	0.15	0.15	0.00				0.00	0.66	0.00	0.09	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	388	136	0				0	1664	0	97	1275	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	11.9	3.7	0.0				0.0	10.6	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	11.9	3.7	0.0				0.0	10.6	0.0	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	509	524					0	4991		151	3843	0
V/C Ratio(X)	0.76	0.26					0.00	0.33		0.64	0.33	0.00
Avail Cap(c_a), veh/h	1429	1470					0	4991		298	3843	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	45.0	41.6	0.0				0.0	8.2	0.0	49.4	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.0				0.0	0.2	0.0	4.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.7	0.0				0.0	3.0	0.0	1.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	41.8	0.0				0.0	8.4	0.0	53.7	0.2	0.0
LnGrp LOS	D	D					A	A		D	A	A
Approach Vol, veh/h		524						1664			1372	
Approach Delay, s/veh		46.0						8.4			4.0	
Approach LOS		D						A			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		88.3		21.7	10.3	78.0						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		53.5		45.5	9.5	38.5						
Max Q Clear Time (g_c+I1), s		2.0		13.9	5.0	12.6						
Green Ext Time (p_c), s		23.5		2.4	0.1	20.2						
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2b. No Build PM
09/30/2022

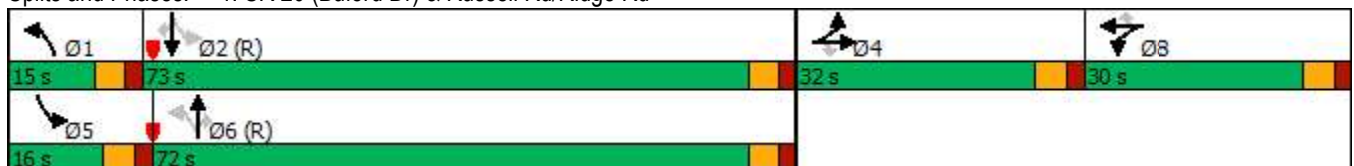


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	201	285	63	121	69	60	1247	124	135	1326	142
Future Volume (vph)	201	285	63	121	69	60	1247	124	135	1326	142
Lane Group Flow (vph)	221	313	69	273	76	66	1370	136	148	1457	156
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	32.0	32.0	32.0	30.0	30.0	15.0	72.0	72.0	16.0	73.0	73.0
Total Split (%)	21.3%	21.3%	21.3%	20.0%	20.0%	10.0%	48.0%	48.0%	10.7%	48.7%	48.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.71	0.96	0.19	0.94	0.23	0.46	0.86	0.18	0.87	0.87	0.19
Control Delay	71.9	100.4	4.6	100.9	6.2	29.4	44.4	8.7	76.6	42.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	100.4	4.6	100.9	6.2	29.4	44.4	8.7	76.6	42.4	5.1
Queue Length 50th (ft)	206	307	0	267	0	29	633	21	96	684	7
Queue Length 95th (ft)	303	#498	20	#440	28	63	738	63	#228	#824	50
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	312	329	360	296	340	162	1585	763	172	1680	833
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.95	0.19	0.92	0.22	0.41	0.86	0.18	0.86	0.87	0.19

Intersection Summary
























Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2b. No Build PM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	285	63	127	121	69	60	1247	124	135	1326	142
Future Volume (veh/h)	201	285	63	127	121	69	60	1247	124	135	1326	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	221	313	69	140	133	76	66	1370	136	148	1457	156
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	3	2
Cap, veh/h	315	330	280	151	143	256	141	1627	726	191	1706	767
Arrive On Green	0.18	0.18	0.18	0.16	0.16	0.16	0.03	0.46	0.46	0.06	0.48	0.48
Sat Flow, veh/h	1781	1870	1585	935	888	1585	1781	3554	1585	1781	3526	1585
Grp Volume(v), veh/h	221	313	69	273	0	76	66	1370	136	148	1457	156
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1824	0	1585	1781	1777	1585	1781	1763	1585
Q Serve(g_s), s	17.5	24.8	5.6	22.1	0.0	6.3	2.9	51.0	7.6	6.6	54.5	8.4
Cycle Q Clear(g_c), s	17.5	24.8	5.6	22.1	0.0	6.3	2.9	51.0	7.6	6.6	54.5	8.4
Prop In Lane	1.00		1.00	0.51		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	330	280	294	0	256	141	1627	726	191	1706	767
V/C Ratio(X)	0.70	0.95	0.25	0.93	0.00	0.30	0.47	0.84	0.19	0.77	0.85	0.20
Avail Cap(c_a), veh/h	315	330	280	298	0	259	199	1627	726	214	1706	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	61.1	53.2	62.0	0.0	55.4	31.1	35.9	24.1	32.5	34.0	22.1
Incr Delay (d2), s/veh	6.8	35.8	0.5	33.5	0.0	0.6	2.4	5.5	0.6	14.6	5.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	14.9	2.3	12.9	0.0	2.6	1.3	22.2	2.9	3.4	23.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	96.8	53.6	95.5	0.0	56.0	33.5	41.3	24.7	47.1	39.7	22.7
LnGrp LOS	E	F	D	F	A	E	C	D	C	D	D	C
Approach Vol, veh/h		603			349			1572			1761	
Approach Delay, s/veh		80.2			86.9			39.6			38.8	
Approach LOS		F			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	78.1		32.0	14.1	74.2		29.7				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	67.5		26.5	10.5	66.5		24.5				
Max Q Clear Time (g_c+I1), s	4.9	56.5		26.8	8.6	53.0		24.1				
Green Ext Time (p_c), s	0.0	9.4		0.0	0.1	10.8		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			48.8									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	1.7						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	12	151	55	1547	0	1380	29
Future Vol, veh/h	12	151	55	1547	0	1380	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	94	94	94	94	92	94	94
Heavy Vehicles, %	2	2	2	2	2	3	2
Mvmt Flow	13	161	59	1646	0	1468	31

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2409	734	1468	0	1646	0
Stage 1	1468	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-
Pot Cap-1 Maneuver	27	363	456	-	127	-
Stage 1	178	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	24	363	456	-	127	-
Mov Cap-2 Maneuver	24	-	-	-	-	-
Stage 1	155	-	-	-	-	-
Stage 2	340	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.9	0.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	456	-	326	127	-	-
HCM Lane V/C Ratio	0.128	-	0.532	-	-	-
HCM Control Delay (s)	14.1	-	27.9	0	-	-
HCM Lane LOS	B	-	D	A	-	-
HCM 95th %tile Q(veh)	0.4	-	3	0	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕	↗	↕	↗	↕
Traffic Vol, veh/h	7	0	3	8	0	2	5	1592	6	4	1527	0
Future Vol, veh/h	7	0	3	8	0	2	5	1592	6	4	1527	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	1	2	2	3	2
Mvmt Flow	7	0	3	9	0	2	5	1694	6	4	1624	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2489	3336	812	2524	3336	847	1624	0	0	1694	0	0
Stage 1	1632	1632	-	1704	1704	-	-	-	-	-	-	-
Stage 2	857	1704	-	820	1632	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	8	322	14	8	305	397	-	-	373	-	-
Stage 1	106	158	-	95	145	-	-	-	-	-	-	-
Stage 2	318	145	-	335	158	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	8	322	14	8	305	397	-	-	373	-	-
Mov Cap-2 Maneuver	77	71	-	71	71	-	-	-	-	-	-	-
Stage 1	105	156	-	94	143	-	-	-	-	-	-	-
Stage 2	312	143	-	328	156	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.6	50.9	0	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	397	-	-	77	322	89	373	-	-
HCM Lane V/C Ratio	0.013	-	-	0.097	0.01	0.12	0.011	-	-
HCM Control Delay (s)	14.2	-	-	56.7	16.3	50.9	14.8	-	-
HCM Lane LOS	B	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.4	0	-	-

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	13	0	3	8	0	4	5	1588	9	4	1534	0
Future Vol, veh/h	13	0	3	8	0	4	5	1588	9	4	1534	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	1	11	2	3	2
Mvmt Flow	14	0	3	8	0	4	5	1672	9	4	1615	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2469	3305	808	2498	3305	836	1615	0	0	1672	0	0
Stage 1	1623	1623	-	1682	1682	-	-	-	-	-	-	-
Stage 2	846	1682	-	816	1623	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	8	324	15	8	310	400	-	-	380	-	-
Stage 1	107	160	-	98	149	-	-	-	-	-	-	-
Stage 2	323	149	-	337	160	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	8	324	15	8	310	400	-	-	380	-	-
Mov Cap-2 Maneuver	77	72	-	73	72	-	-	-	-	-	-	-
Stage 1	106	158	-	97	147	-	-	-	-	-	-	-
Stage 2	315	147	-	330	158	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53.1	47.1	0	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	400	-	-	77	324	98	380	-	-
HCM Lane V/C Ratio	0.013	-	-	0.178	0.01	0.129	0.011	-	-
HCM Control Delay (s)	14.1	-	-	61.6	16.2	47.1	14.6	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0.4	0	-	-

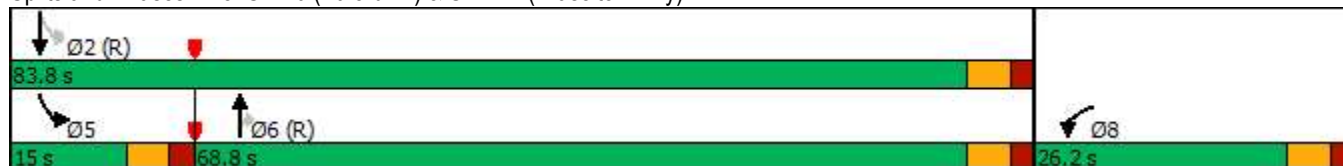
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	377	1482	825	74	1476
Future Volume (vph)	377	1482	825	74	1476
Lane Group Flow (vph)	431	1512	842	76	1506
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	26.2	68.8	68.8	15.0	83.8
Total Split (%)	23.8%	62.5%	62.5%	13.6%	76.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.75	0.67	0.64	0.34	0.58
Control Delay	51.4	2.7	2.9	8.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	2.7	2.9	8.6	8.2
Queue Length 50th (ft)	146	32	0	13	229
Queue Length 95th (ft)	196	43	m77	28	304
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	649	2272	1317	261	2575
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.67	0.64	0.29	0.58

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

2b. No Build PM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	377	45	1482	825	74	1476
Future Volume (veh/h)	377	45	1482	825	74	1476
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1856
Adj Flow Rate, veh/h	428	0	1512	0	76	1506
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	6	3
Cap, veh/h	508		2369		359	2671
Arrive On Green	0.14	0.00	1.00	0.00	0.04	0.76
Sat Flow, veh/h	3563	1585	3647	1585	1725	3618
Grp Volume(v), veh/h	428	0	1512	0	76	1506
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1725	1763
Q Serve(g_s), s	12.9	0.0	0.0	0.0	1.4	19.9
Cycle Q Clear(g_c), s	12.9	0.0	0.0	0.0	1.4	19.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	508		2369		359	2671
V/C Ratio(X)	0.84		0.64		0.21	0.56
Avail Cap(c_a), veh/h	670		2369		438	2671
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.42	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	0.0	0.0	4.4	5.6
Incr Delay (d2), s/veh	7.5	0.0	0.6	0.0	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.2	0.0	0.4	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.4	0.0	0.6	0.0	4.6	6.5
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	428		1512			1582
Approach Delay, s/veh	53.4		0.6			6.4
Approach LOS	D		A			A
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		88.8			10.0	78.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		78.3			9.5	63.3
Max Q Clear Time (g_c+I1), s		21.9			3.4	2.0
Green Ext Time (p_c), s		33.0			0.1	34.8

Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

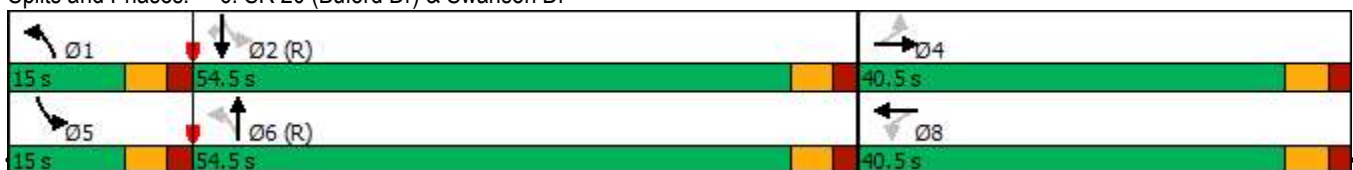


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↕↕↕	↙	↕↕	↙
Traffic Volume (vph)	87	14	54	16	79	2494	61	1699	34
Future Volume (vph)	87	14	54	16	79	2494	61	1699	34
Lane Group Flow (vph)	0	195	0	146	84	2779	65	1807	36
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.81		0.57	0.45	0.85	0.37	0.80	0.03
Control Delay		58.2		36.1	25.5	19.2	17.4	17.2	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		58.2		36.1	25.5	19.2	17.4	17.2	0.2
Queue Length 50th (ft)		108		64	15	476	9	306	0
Queue Length 95th (ft)		175		120	67	#833	m30	#843	m0
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		430		444	223	3280	219	2255	1037
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.45		0.33	0.38	0.85	0.30	0.80	0.03

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

2b. No Build PM
09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↑↑↑		↘	↑↑	↖
Traffic Volume (veh/h)	87	14	82	54	16	68	79	2494	118	61	1699	34
Future Volume (veh/h)	87	14	82	54	16	68	79	2494	118	61	1699	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	15	87	57	17	72	84	2653	126	65	1807	36
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	2	2	2	2
Cap, veh/h	148	28	103	119	46	117	305	3275	154	160	2300	1026
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.65	0.65	0.08	1.00	1.00
Sat Flow, veh/h	620	174	640	460	289	729	1795	5037	236	1781	3554	1585
Grp Volume(v), veh/h	195	0	0	146	0	0	84	1796	983	65	1807	36
Grp Sat Flow(s),veh/h/ln	1435	0	0	1477	0	0	1795	1716	1843	1781	1777	1585
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	0.0	1.7	42.3	44.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	14.6	0.0	0.0	9.9	0.0	0.0	1.7	42.3	44.0	1.3	0.0	0.0
Prop In Lane	0.48		0.45	0.39		0.49	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	0	283	0	0	305	2230	1198	160	2300	1026
V/C Ratio(X)	0.70	0.00	0.00	0.52	0.00	0.00	0.28	0.81	0.82	0.41	0.79	0.04
Avail Cap(c_a), veh/h	508	0	0	516	0	0	384	2230	1198	244	2300	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	44.8	0.0	0.0	42.7	0.0	0.0	5.6	14.1	14.4	22.2	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	1.5	0.0	0.0	0.5	3.2	6.4	1.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	3.8	0.0	0.0	0.6	14.4	17.1	1.1	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	0.0	0.0	44.2	0.0	0.0	6.1	17.4	20.8	23.5	2.1	0.0
LnGrp LOS	D	A	A	D	A	A	A	B	C	C	A	A
Approach Vol, veh/h		195			146			2863				1908
Approach Delay, s/veh		48.0			44.2			18.2				2.8
Approach LOS		D			D			B				A
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	76.7		23.2	9.8	77.0		23.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	3.7	2.0		16.6	3.3	46.0		11.9				
Green Ext Time (p_c), s	0.1	36.6		1.1	0.0	3.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				14.3								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

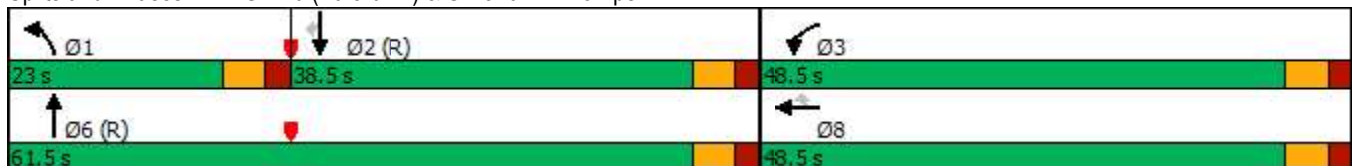


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↙↘	↑↑	↗	↙↘	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	102	77	116	345	1728	1313	509
Future Volume (vph)	102	77	116	345	1728	1313	509
Lane Group Flow (vph)	105	79	120	356	1781	1354	525
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	23.0	61.5	38.5	38.5
Total Split (%)	44.1%	44.1%	44.1%	20.9%	55.9%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.35	0.26	0.57	0.69	0.43	0.29	0.45
Control Delay	49.5	47.8	29.6	43.7	3.5	20.5	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	49.5	47.8	29.6	43.7	3.6	20.5	10.9
Queue Length 50th (ft)	37	28	28	112	83	168	112
Queue Length 95th (ft)	61	50	83	163	145	261	m274
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	572	4131	4616	1172
Starvation Cap Reductn	0	0	0	0	676	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.06	0.18	0.62	0.52	0.29	0.45

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
7: SR 20 (Buford Dr) & SR 316 WB Ramps

2b. No Build PM
09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	102	77	116	345	1728	0	0	1313	509
Future Volume (veh/h)	0	0	0	102	77	116	345	1728	0	0	1313	509
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	79	0	356	1781	0	0	1354	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				192	197		419	4312	0	0	5099	
Arrive On Green				0.06	0.06	0.00	0.24	1.00	0.00	0.00	0.67	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				105	79	0	356	1781	0	0	1354	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	7.8	0.0
Cycle Q Clear(g_c), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	7.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				192	197		419	4312	0	0	5099	
V/C Ratio(X)				0.55	0.40		0.85	0.41	0.00	0.00	0.27	
Avail Cap(c_a), veh/h				1351	1389		550	4312	0	0	5099	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.82	0.82	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.6	50.2	0.0	40.7	0.0	0.0	0.0	7.2	0.0
Incr Delay (d2), s/veh				2.4	1.3	0.0	7.9	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	1.1	0.0	4.4	0.1	0.0	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.0	51.5	0.0	48.6	0.2	0.0	0.0	7.3	0.0
LnGrp LOS				D	D		D	A	A	A	A	
Approach Vol, veh/h					184			2137			1354	
Approach Delay, s/veh					52.4			8.3			7.3	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.8	79.6				98.4		11.6				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	17.5	33.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	12.8	9.8				2.0		5.3				
Green Ext Time (p_c), s	0.5	15.7				37.3		0.9				

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

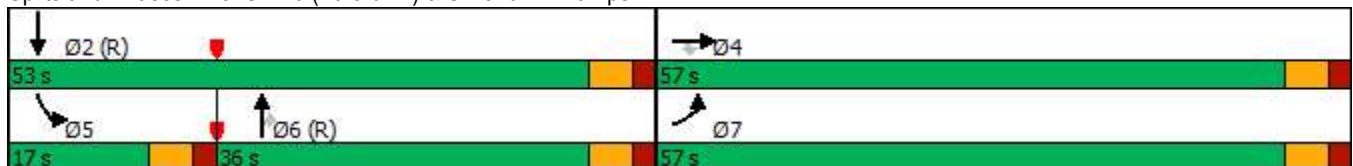


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↑↑	↷	↑↑↑↑	↷	↶↶	↑↑↑
Traffic Volume (vph)	893	780	338	1142	16	107	1310
Future Volume (vph)	893	780	338	1142	16	107	1310
Lane Group Flow (vph)	911	796	345	1165	16	109	1337
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	57.0	57.0	57.0	36.0	36.0	17.0	53.0
Total Split (%)	51.8%	51.8%	51.8%	32.7%	32.7%	15.5%	48.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.79	0.67	0.59	0.36	0.02	0.39	0.47
Control Delay	38.3	33.9	26.5	22.3	0.1	69.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	33.9	26.5	22.3	0.1	69.1	10.7
Queue Length 50th (ft)	299	253	155	132	0	35	329
Queue Length 95th (ft)	328	280	220	187	0	57	82
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1607	1656	783	3279	732	358	2874
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.48	0.44	0.36	0.02	0.30	0.47

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
8: SR 20 (Buford Dr) & SR 316 EB Ramps

2b. No Build PM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	893	780	338	0	0	0	0	1142	16	107	1310	0
Future Volume (veh/h)	893	780	338	0	0	0	0	1142	16	107	1310	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	911	796	0				0	1165	0	109	1337	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1200	1234					0	3444		166	2822	0
Arrive On Green	0.35	0.35	0.00				0.00	0.45	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	911	796	0				0	1165	0	109	1337	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	25.7	20.7	0.0				0.0	10.9	0.0	3.3	0.0	0.0
Cycle Q Clear(g_c), s	25.7	20.7	0.0				0.0	10.9	0.0	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1200	1234					0	3444		166	2822	0
V/C Ratio(X)	0.76	0.64					0.00	0.34		0.66	0.47	0.00
Avail Cap(c_a), veh/h	1618	1664					0	3444		361	2822	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	31.8	30.2	0.0				0.0	19.3	0.0	48.8	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.6	0.0				0.0	0.3	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	8.8	0.0				0.0	3.6	0.0	1.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	30.8	0.0				0.0	19.6	0.0	53.0	0.5	0.0
LnGrp LOS	C	C					A	B		D	A	A
Approach Vol, veh/h		1707						1165			1446	
Approach Delay, s/veh		32.1						19.6			4.5	
Approach LOS		C						B			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		66.3		43.7	10.8	55.5						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		47.5		51.5	11.5	30.5						
Max Q Clear Time (g_c+I1), s		2.0		27.7	5.3	12.9						
Green Ext Time (p_c), s		23.6		10.5	0.1	11.3						
Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

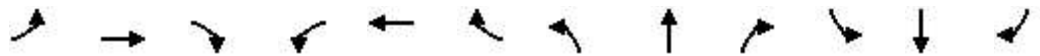
**Future “No-Build” Intersection Analysis with
Improvements**

Timings

2a. No Build AM - Improved

1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

09/30/2022

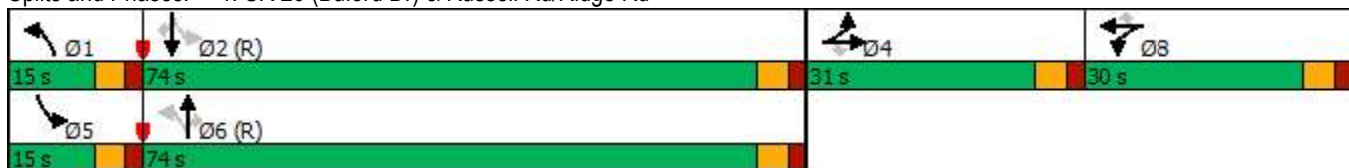


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↕	↗	↘	↕	↖
Traffic Volume (vph)	211	82	43	126	177	63	53	1020	50	81	1238	202
Future Volume (vph)	211	82	43	126	177	63	53	1020	50	81	1238	202
Lane Group Flow (vph)	227	88	46	135	190	68	57	1097	54	87	1331	217
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	4	4	4	8	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	31.0	31.0	31.0	30.0	30.0	30.0	15.0	74.0	74.0	15.0	74.0	74.0
Total Split (%)	20.7%	20.7%	20.7%	20.0%	20.0%	20.0%	10.0%	49.3%	49.3%	10.0%	49.3%	49.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.84	0.31	0.15	0.58	0.77	0.23	0.30	0.63	0.06	0.34	0.72	0.23
Control Delay	87.3	58.9	1.0	70.5	82.3	5.3	18.3	29.8	0.3	17.7	31.9	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.3	58.9	1.0	70.5	82.3	5.3	18.3	29.8	0.3	17.7	31.9	3.3
Queue Length 50th (ft)	216	77	0	125	181	0	23	413	0	35	543	0
Queue Length 95th (ft)	#327	132	0	193	263	19	47	533	2	67	703	47
Internal Link Dist (ft)		601			820			1510			563	
Turn Bay Length (ft)	330		335	210		170	290		75	265		375
Base Capacity (vph)	303	316	342	289	307	340	208	1734	861	267	1836	955
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.28	0.13	0.47	0.62	0.20	0.27	0.63	0.06	0.33	0.72	0.23

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2a. No Build AM - Improved
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	82	43	126	177	63	53	1020	50	81	1238	202
Future Volume (veh/h)	211	82	43	126	177	63	53	1020	50	81	1238	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1826	1870	1885	1870	1841	1796	1870	1870	1826	1885
Adj Flow Rate, veh/h	227	88	46	135	190	68	57	1097	54	87	1331	217
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	5	2	1	2	4	7	2	2	5	1
Cap, veh/h	254	264	219	211	224	188	197	1910	887	279	1953	900
Arrive On Green	0.14	0.14	0.14	0.12	0.12	0.12	0.03	0.56	0.56	0.03	0.56	0.56
Sat Flow, veh/h	1795	1870	1547	1781	1885	1585	1753	3413	1585	1781	3469	1598
Grp Volume(v), veh/h	227	88	46	135	190	68	57	1097	54	87	1331	217
Grp Sat Flow(s),veh/h/ln	1795	1870	1547	1781	1885	1585	1753	1706	1585	1781	1735	1598
Q Serve(g_s), s	18.6	6.4	3.9	10.8	14.8	5.9	2.1	31.3	2.3	3.1	40.8	10.3
Cycle Q Clear(g_c), s	18.6	6.4	3.9	10.8	14.8	5.9	2.1	31.3	2.3	3.1	40.8	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	254	264	219	211	224	188	197	1910	887	279	1953	900
V/C Ratio(X)	0.89	0.33	0.21	0.64	0.85	0.36	0.29	0.57	0.06	0.31	0.68	0.24
Avail Cap(c_a), veh/h	305	318	263	291	308	259	255	1910	887	332	1953	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	58.0	57.0	63.0	64.8	60.9	19.6	21.4	15.1	17.0	23.2	16.6
Incr Delay (d2), s/veh	23.9	0.7	0.5	3.2	14.9	1.2	0.8	1.3	0.1	0.6	1.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	3.0	1.6	5.1	8.0	2.4	0.8	12.1	0.8	1.2	16.1	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.2	58.8	57.5	66.2	79.7	62.0	20.4	22.7	15.2	17.6	25.2	17.2
LnGrp LOS	F	E	E	E	E	E	C	C	B	B	C	B
Approach Vol, veh/h		361			393			1208			1635	
Approach Delay, s/veh		76.5			72.0			22.3			23.7	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	90.0		26.7	10.6	89.4		23.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	68.5		25.5	9.5	68.5		24.5				
Max Q Clear Time (g_c+I1), s	4.1	42.8		20.6	5.1	33.3		16.8				
Green Ext Time (p_c), s	0.0	18.4		0.6	0.1	17.1		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				33.8								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	6.2						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖	↗	↖	↕	↘	↕	↗
Traffic Vol, veh/h	23	132	97	1355	0	1341	40
Future Vol, veh/h	23	132	97	1355	0	1341	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	0	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	92	90	90
Heavy Vehicles, %	2	2	2	7	2	6	2
Mvmt Flow	26	147	108	1506	0	1490	44

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2459	745	1490
Stage 1	1490	-	-
Stage 2	969	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	~ 25	357	447
Stage 1	173	-	-
Stage 2	329	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 19	357	447
Mov Cap-2 Maneuver	~ 19	-	-
Stage 1	131	-	-
Stage 2	329	-	-

Approach	EB	NB	SB
HCM Control Delay, s	110.6	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBU	SBT	SBR
Capacity (veh/h)	447	-	19	357	156	-	-
HCM Lane V/C Ratio	0.241	-	1.345	0.411	-	-	-
HCM Control Delay (s)	15.6	-	619.5	21.9	0	-	-
HCM Lane LOS	C	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.9	-	3.5	1.9	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↖	↗	↗	↖	↗	↗
Traffic Vol, veh/h	1	0	2	4	0	4	4	1447	1	6	1463	4
Future Vol, veh/h	1	0	2	4	0	4	4	1447	1	6	1463	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	5	0	5	5	1644	1	7	1663	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2509	3331	832	2500	3331	822	1663	0	0	1644	0	0
Stage 1	1677	1677	-	1654	1654	-	-	-	-	-	-	-
Stage 2	832	1654	-	846	1677	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	14	8	312	15	8	317	383	-	-	390	-	-
Stage 1	99	150	-	102	154	-	-	-	-	-	-	-
Stage 2	330	154	-	323	150	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	8	312	15	8	317	383	-	-	390	-	-
Mov Cap-2 Maneuver	72	70	-	74	71	-	-	-	-	-	-	-
Stage 1	98	147	-	101	152	-	-	-	-	-	-	-
Stage 2	321	152	-	315	147	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.7		30.9		0		0.1	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	383	-	-	72	312	148	390	-	-
HCM Lane V/C Ratio	0.012	-	-	0.016	0.007	0.061	0.017	-	-
HCM Control Delay (s)	14.5	-	-	55.8	16.6	30.9	14.4	-	-
HCM Lane LOS	B	-	-	F	C	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0.1	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	1	0	2	6	0	3	10	1434	1	7	1455	9
Future Vol, veh/h	1	0	2	6	0	3	10	1434	1	7	1455	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	1	0	2	7	0	3	11	1630	1	8	1653	10

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2506	3321	827	2495	3321	815	1653	0	0	1630	0	0
Stage 1	1669	1669	-	1652	1652	-	-	-	-	-	-	-
Stage 2	837	1652	-	843	1669	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	14	8	315	15	8	321	386	-	-	394	-	-
Stage 1	100	151	-	103	154	-	-	-	-	-	-	-
Stage 2	327	154	-	325	151	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	8	315	14	8	321	386	-	-	394	-	-
Mov Cap-2 Maneuver	71	70	-	73	69	-	-	-	-	-	-	-
Stage 1	97	148	-	100	150	-	-	-	-	-	-	-
Stage 2	314	150	-	316	148	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.8	46	0.1	0.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	386	-	-	71	315	98	394	-	-
HCM Lane V/C Ratio	0.029	-	-	0.016	0.007	0.104	0.02	-	-
HCM Control Delay (s)	14.6	-	-	56.5	16.5	46	14.3	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0	0.3	0.1	-	-

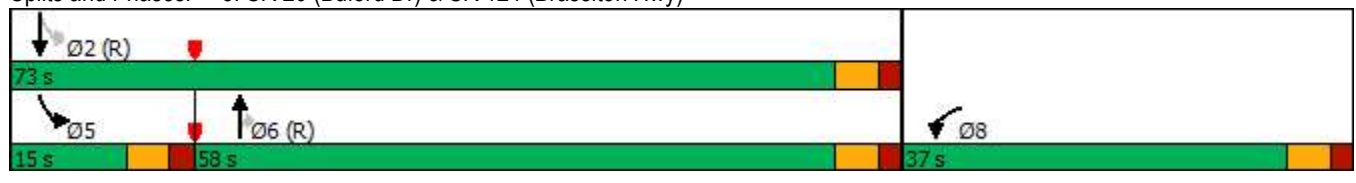
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	825	1367	373	61	1519
Future Volume (vph)	825	1367	373	61	1519
Lane Group Flow (vph)	897	1424	389	64	1582
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	37.0	58.0	58.0	15.0	73.0
Total Split (%)	33.6%	52.7%	52.7%	13.6%	66.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.93	0.81	0.40	0.36	0.74
Control Delay	55.3	16.0	1.9	14.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	16.0	1.9	14.2	17.7
Queue Length 50th (ft)	313	334	0	17	391
Queue Length 95th (ft)	#431	476	50	34	481
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	983	1768	983	210	2130
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.81	0.40	0.30	0.74

Intersection Summary















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

2a. No Build AM - Improved
 09/30/2022

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	 		 			 	
Traffic Volume (veh/h)	825	36	1367	373	61	1519	
Future Volume (veh/h)	825	36	1367	373	61	1519	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1796	1811	1767	1826	
Adj Flow Rate, veh/h	894	0	1424	0	64	1582	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	2	3	7	6	9	5	
Cap, veh/h	968		1841		323	2180	
Arrive On Green	0.27	0.00	1.00	0.00	0.04	0.63	
Sat Flow, veh/h	3563	1572	3503	1535	1682	3561	
Grp Volume(v), veh/h	894	0	1424	0	64	1582	
Grp Sat Flow(s),veh/h/ln	1781	1572	1706	1535	1682	1735	
Q Serve(g_s), s	26.8	0.0	0.0	0.0	1.8	34.3	
Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	1.8	34.3	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	968		1841		323	2180	
V/C Ratio(X)	0.92		0.77		0.20	0.73	
Avail Cap(c_a), veh/h	1020		1841		403	2180	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.76	0.00	1.00	1.00	
Uniform Delay (d), s/veh	39.0	0.0	0.0	0.0	9.3	14.0	
Incr Delay (d2), s/veh	13.2	0.0	2.5	0.0	0.3	2.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	12.9	0.0	0.6	0.0	0.6	12.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	52.1	0.0	2.5	0.0	9.6	16.1	
LnGrp LOS	D		A		A	B	
Approach Vol, veh/h	894		1424			1646	
Approach Delay, s/veh	52.1		2.5			15.9	
Approach LOS	D		A			B	
Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		74.6			9.8	64.8	35.4
Change Period (Y+Rc), s		5.5			5.5	5.5	5.5
Max Green Setting (Gmax), s		67.5			9.5	52.5	31.5
Max Q Clear Time (g_c+I1), s		36.3			3.8	2.0	28.8
Green Ext Time (p_c), s		23.4			0.0	28.8	1.0

Intersection Summary						
HCM 6th Ctrl Delay			19.2			
HCM 6th LOS			B			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

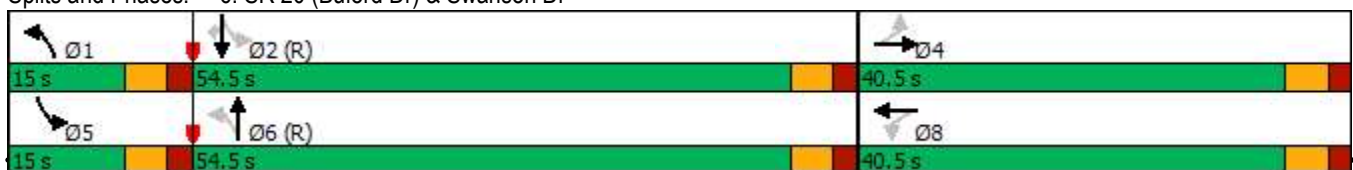


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↗	↑↑↑	↘	↑↑	↖
Traffic Volume (vph)	64	27	90	51	122	1729	48	1822	67
Future Volume (vph)	64	27	90	51	122	1729	48	1822	67
Lane Group Flow (vph)	0	187	0	197	124	1832	49	1859	68
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.66		0.83	0.58	0.60	0.25	0.90	0.07
Control Delay		40.6		65.9	36.1	9.8	6.6	22.8	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.6		65.9	36.1	9.8	6.6	22.8	1.9
Queue Length 50th (ft)		91		124	44	130	5	533	1
Queue Length 95th (ft)		154		192	112	271	m11	#941	m4
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		458		398	236	3031	246	2063	956
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		0.49	0.53	0.60	0.20	0.90	0.07

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

2a. No Build AM - Improved
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	27	92	90	51	52	122	1729	67	48	1822	67
Future Volume (veh/h)	64	27	92	90	51	52	122	1729	67	48	1822	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	65	28	94	92	52	53	124	1764	68	49	1859	68
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	2	2	2	7	3	2	2	2
Cap, veh/h	116	54	128	144	74	62	291	3115	120	239	2252	1004
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.07	1.00	1.00
Sat Flow, veh/h	418	317	743	557	428	362	1781	4845	187	1781	3554	1585
Grp Volume(v), veh/h	187	0	0	197	0	0	124	1190	642	49	1859	68
Grp Sat Flow(s),veh/h/ln	1479	0	0	1347	0	0	1781	1635	1763	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	2.6	22.5	22.5	1.0	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0	15.9	0.0	0.0	2.6	22.5	22.5	1.0	0.0	0.0
Prop In Lane	0.35		0.50	0.47		0.27	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	298	0	0	280	0	0	291	2102	1133	239	2252	1004
V/C Ratio(X)	0.63	0.00	0.00	0.70	0.00	0.00	0.43	0.57	0.57	0.20	0.83	0.07
Avail Cap(c_a), veh/h	518	0	0	495	0	0	366	2102	1133	330	2252	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	42.9	0.0	0.0	44.2	0.0	0.0	6.1	11.0	11.0	8.5	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.2	0.0	0.0	1.0	1.1	2.1	0.2	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	5.4	0.0	0.0	0.9	7.2	8.1	0.3	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	0.0	0.0	47.5	0.0	0.0	7.1	12.1	13.1	8.7	1.8	0.1
LnGrp LOS	D	A	A	D	A	A	A	B	B	A	A	A
Approach Vol, veh/h		187			197			1956			1976	
Approach Delay, s/veh		45.1			47.5			12.1			1.9	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	75.2		24.4	9.4	76.2		24.4				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	4.6	2.0		15.1	3.0	24.5		17.9				
Green Ext Time (p_c), s	0.1	37.8		1.1	0.0	20.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.5								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

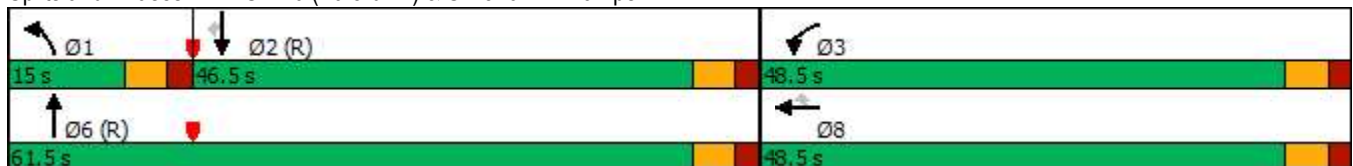


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↑↑	↗	↖↖	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	111	112	102	301	1690	1220	954
Future Volume (vph)	111	112	102	301	1690	1220	954
Lane Group Flow (vph)	112	113	103	304	1707	1232	964
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	15.0	61.5	46.5	46.5
Total Split (%)	44.1%	44.1%	44.1%	13.6%	55.9%	42.3%	42.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	0.38	0.50	0.57	0.41	0.27	0.80
Control Delay	51.1	50.8	24.5	57.3	3.2	18.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	50.8	24.5	57.3	3.3	18.2	21.0
Queue Length 50th (ft)	39	40	16	118	93	140	343
Queue Length 95th (ft)	65	67	68	164	110	m212	m559
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	534	4150	4606	1207
Starvation Cap Reductn	0	0	0	0	172	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.15	0.57	0.43	0.27	0.80

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
7: SR 20 (Buford Dr) & SR 316 WB Ramps

2a. No Build AM - Improved
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	111	112	102	301	1690	0	0	1220	954
Future Volume (veh/h)	0	0	0	111	112	102	301	1690	0	0	1220	954
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				112	113	0	304	1707	0	0	1232	0
Peak Hour Factor				0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				207	213		298	4290	0	0	5331	
Arrive On Green				0.06	0.06	0.00	0.17	1.00	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				112	113	0	304	1707	0	0	1232	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.3	0.0
Cycle Q Clear(g_c), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				207	213		298	4290	0	0	5331	
V/C Ratio(X)				0.54	0.53		1.02	0.40	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				1351	1389		298	4290	0	0	5331	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.2	50.2	0.0	45.5	0.0	0.0	0.0	5.8	0.0
Incr Delay (d2), s/veh				2.2	2.1	0.0	54.5	0.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	1.6	0.0	5.8	0.1	0.0	0.0	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.4	52.3	0.0	100.0	0.3	0.0	0.0	5.9	0.0
LnGrp LOS				D	D		F	A	A	A	A	
Approach Vol, veh/h					225			2011			1232	
Approach Delay, s/veh					52.3			15.3			5.9	
Approach LOS					D			B			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	82.9				97.9		12.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	11.5	8.3				2.0		5.5				
Green Ext Time (p_c), s	0.0	17.9				35.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				14.4								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

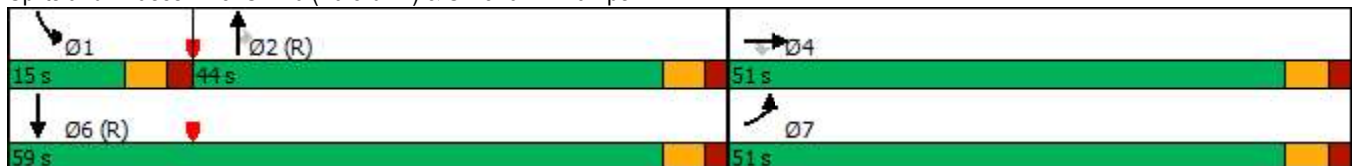


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↑↑↑↑	↗	↖↖	↑↑↑
Traffic Volume (vph)	376	132	180	1614	43	94	1237
Future Volume (vph)	376	132	180	1614	43	94	1237
Lane Group Flow (vph)	388	136	186	1664	44	97	1275
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		2		1	6
Permitted Phases			4		2		
Detector Phase	7	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	23.5	23.5	15.0	27.5
Total Split (s)	51.0	51.0	51.0	44.0	44.0	15.0	59.0
Total Split (%)	46.4%	46.4%	46.4%	40.0%	40.0%	13.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.69	0.23	0.57	0.36	0.04	0.37	0.34
Control Delay	49.8	40.0	30.7	11.6	0.8	67.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	40.0	30.7	11.6	0.8	67.1	6.5
Queue Length 50th (ft)	134	44	69	135	0	38	83
Queue Length 95th (ft)	176	70	136	184	5	67	71
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1420	1463	701	4597	995	303	3744
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.09	0.27	0.36	0.04	0.32	0.34

Intersection Summary





























Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

2a. No Build AM - Improved
 09/30/2022

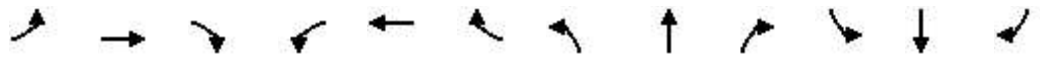
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						   		 	   	
Traffic Volume (veh/h)	376	132	180	0	0	0	0	1614	43	94	1237	0
Future Volume (veh/h)	376	132	180	0	0	0	0	1614	43	94	1237	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	388	136	0				0	1664	0	97	1275	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	509	524					0	4991		151	3843	0
Arrive On Green	0.15	0.15	0.00				0.00	0.66	0.00	0.09	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	388	136	0				0	1664	0	97	1275	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	11.9	3.7	0.0				0.0	10.6	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	11.9	3.7	0.0				0.0	10.6	0.0	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	509	524					0	4991		151	3843	0
V/C Ratio(X)	0.76	0.26					0.00	0.33		0.64	0.33	0.00
Avail Cap(c_a), veh/h	1429	1470					0	4991		298	3843	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	45.0	41.6	0.0				0.0	8.2	0.0	49.4	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.0				0.0	0.2	0.0	4.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.7	0.0				0.0	3.0	0.0	1.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	41.8	0.0				0.0	8.4	0.0	53.7	0.2	0.0
LnGrp LOS	D	D					A	A		D	A	A
Approach Vol, veh/h		524						1664			1372	
Approach Delay, s/veh		46.0						8.4			4.0	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	10.3	78.0		21.7				88.3				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	9.5	38.5		45.5				53.5				
Max Q Clear Time (g_c+I1), s	5.0	12.6		13.9				2.0				
Green Ext Time (p_c), s	0.1	20.2		2.4				23.5				
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

2b. No Build PM - Improved

1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

09/30/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↕	↗	↘	↕	↖
Traffic Volume (vph)	201	285	63	127	121	69	60	1247	124	135	1326	142
Future Volume (vph)	201	285	63	127	121	69	60	1247	124	135	1326	142
Lane Group Flow (vph)	221	313	69	140	133	76	66	1370	136	148	1457	156
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	4	4	4	8	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	33.0	33.0	33.0	30.0	30.0	30.0	15.0	72.0	72.0	15.0	72.0	72.0
Total Split (%)	22.0%	22.0%	22.0%	20.0%	20.0%	20.0%	10.0%	48.0%	48.0%	10.0%	48.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.70	0.94	0.19	0.69	0.62	0.28	0.42	0.82	0.17	0.71	0.80	0.17
Control Delay	70.3	96.1	4.5	80.3	75.1	7.3	23.3	39.7	8.5	48.3	35.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	96.1	4.5	80.3	75.1	7.3	23.3	39.7	8.5	48.3	35.3	5.1
Queue Length 50th (ft)	204	304	0	134	126	0	26	619	21	80	623	8
Queue Length 95th (ft)	301	#485	20	201	190	28	55	738	63	#226	#866	52
Internal Link Dist (ft)		601			820			1510			563	
Turn Bay Length (ft)	330		335	210		170	290		75	265		375
Base Capacity (vph)	324	341	370	289	304	340	176	1679	802	207	1828	892
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.92	0.19	0.48	0.44	0.22	0.38	0.82	0.17	0.71	0.80	0.17

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

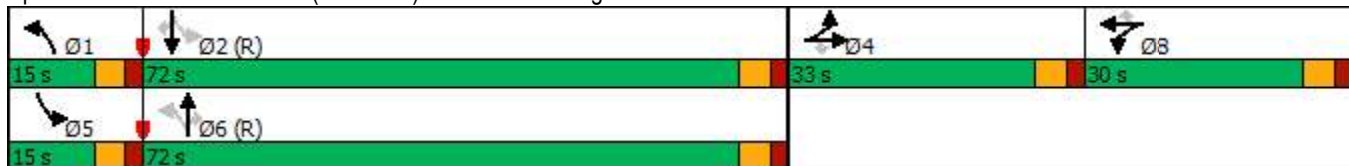
Natural Cycle: 130

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

2b. No Build PM - Improved
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	285	63	127	121	69	60	1247	124	135	1326	142
Future Volume (veh/h)	201	285	63	127	121	69	60	1247	124	135	1326	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	221	313	69	140	133	76	66	1370	136	148	1457	156
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	3	2
Cap, veh/h	320	336	285	173	181	154	174	1864	832	219	1923	865
Arrive On Green	0.18	0.18	0.18	0.10	0.10	0.10	0.03	0.52	0.52	0.05	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3526	1585
Grp Volume(v), veh/h	221	313	69	140	133	76	66	1370	136	148	1457	156
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1763	1585
Q Serve(g_s), s	17.4	24.7	5.6	11.6	10.4	6.8	2.6	44.7	6.7	5.8	48.0	7.4
Cycle Q Clear(g_c), s	17.4	24.7	5.6	11.6	10.4	6.8	2.6	44.7	6.7	5.8	48.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	336	285	173	181	154	174	1864	832	219	1923	865
V/C Ratio(X)	0.69	0.93	0.24	0.81	0.73	0.49	0.38	0.73	0.16	0.67	0.76	0.18
Avail Cap(c_a), veh/h	327	343	291	291	305	259	231	1864	832	240	1923	865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	60.6	52.7	66.4	65.9	64.2	23.9	27.6	18.5	26.3	26.4	17.2
Incr Delay (d2), s/veh	5.9	31.1	0.4	8.8	5.6	2.5	1.4	2.6	0.4	6.5	2.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	14.5	2.3	5.6	5.2	2.8	1.1	18.5	2.5	2.6	19.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	91.7	53.2	75.2	71.5	66.7	25.2	30.2	19.0	32.8	29.3	17.6
LnGrp LOS	E	F	D	E	E	E	C	C	B	C	C	B
Approach Vol, veh/h		603			349			1572			1761	
Approach Delay, s/veh		76.9			71.9			29.0			28.5	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	87.3		32.5	13.3	84.2		20.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	66.5		27.5	9.5	66.5		24.5				
Max Q Clear Time (g_c+I1), s	4.6	50.0		26.7	7.8	46.7		13.6				
Green Ext Time (p_c), s	0.0	13.4		0.2	0.1	14.9		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				39.1								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	2.3						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↓	↑↑	↗
Traffic Vol, veh/h	12	151	55	1547	0	1380	29
Future Vol, veh/h	12	151	55	1547	0	1380	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	0	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	94	94	94	94	92	94	94
Heavy Vehicles, %	2	2	2	2	2	3	2
Mvmt Flow	13	161	59	1646	0	1468	31

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2409	734	1468
Stage 1	1468	-	-
Stage 2	941	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	27	363	456
Stage 1	178	-	-
Stage 2	340	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	24	363	456
Mov Cap-2 Maneuver	24	-	-
Stage 1	155	-	-
Stage 2	340	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.6	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBU	SBT	SBR
Capacity (veh/h)	456	-	24	363	127	-	-
HCM Lane V/C Ratio	0.128	-	0.532	0.443	-	-	-
HCM Control Delay (s)	14.1	-	266.5	22.6	0	-	-
HCM Lane LOS	B	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	1.6	2.2	0	-	-

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	7	0	3	8	0	2	5	1592	6	4	1527	0
Future Vol, veh/h	7	0	3	8	0	2	5	1592	6	4	1527	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	1	2	2	3	2
Mvmt Flow	7	0	3	9	0	2	5	1694	6	4	1624	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2489	3336	812	2524	3336	847	1624	0	0	1694	0	0
Stage 1	1632	1632	-	1704	1704	-	-	-	-	-	-	-
Stage 2	857	1704	-	820	1632	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	8	322	14	8	305	397	-	-	373	-	-
Stage 1	106	158	-	95	145	-	-	-	-	-	-	-
Stage 2	318	145	-	335	158	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	8	322	14	8	305	397	-	-	373	-	-
Mov Cap-2 Maneuver	77	71	-	71	71	-	-	-	-	-	-	-
Stage 1	105	156	-	94	143	-	-	-	-	-	-	-
Stage 2	312	143	-	328	156	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.6	50.9	0	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	397	-	-	77	322	89	373	-	-
HCM Lane V/C Ratio	0.013	-	-	0.097	0.01	0.12	0.011	-	-
HCM Control Delay (s)	14.2	-	-	56.7	16.3	50.9	14.8	-	-
HCM Lane LOS	B	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.4	0	-	-

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	13	0	3	8	0	4	5	1588	9	4	1534	0
Future Vol, veh/h	13	0	3	8	0	4	5	1588	9	4	1534	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	1	11	2	3	2
Mvmt Flow	14	0	3	8	0	4	5	1672	9	4	1615	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2469	3305	808	2498	3305	836	1615	0	0	1672	0	0
Stage 1	1623	1623	-	1682	1682	-	-	-	-	-	-	-
Stage 2	846	1682	-	816	1623	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	15	8	324	15	8	310	400	-	-	380	-	-
Stage 1	107	160	-	98	149	-	-	-	-	-	-	-
Stage 2	323	149	-	337	160	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	8	324	15	8	310	400	-	-	380	-	-
Mov Cap-2 Maneuver	77	72	-	73	72	-	-	-	-	-	-	-
Stage 1	106	158	-	97	147	-	-	-	-	-	-	-
Stage 2	315	147	-	330	158	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53.1	47.1	0	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	400	-	-	77	324	98	380	-	-
HCM Lane V/C Ratio	0.013	-	-	0.178	0.01	0.129	0.011	-	-
HCM Control Delay (s)	14.1	-	-	61.6	16.2	47.1	14.6	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0.4	0	-	-

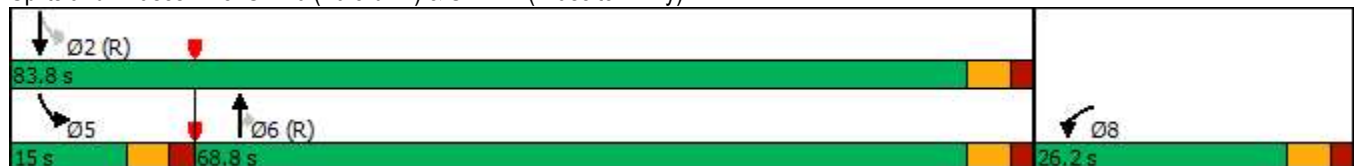
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	377	1482	825	74	1476
Future Volume (vph)	377	1482	825	74	1476
Lane Group Flow (vph)	431	1512	842	76	1506
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	26.2	68.8	68.8	15.0	83.8
Total Split (%)	23.8%	62.5%	62.5%	13.6%	76.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.75	0.67	0.64	0.34	0.58
Control Delay	51.4	2.7	2.9	8.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	2.7	2.9	8.6	8.2
Queue Length 50th (ft)	146	32	0	13	229
Queue Length 95th (ft)	196	43	m77	28	304
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	649	2272	1317	261	2575
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.67	0.64	0.29	0.58

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

2b. No Build PM - Improved
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	377	45	1482	825	74	1476
Future Volume (veh/h)	377	45	1482	825	74	1476
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1856
Adj Flow Rate, veh/h	428	0	1512	0	76	1506
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	6	3
Cap, veh/h	508		2369		359	2671
Arrive On Green	0.14	0.00	1.00	0.00	0.04	0.76
Sat Flow, veh/h	3563	1585	3647	1585	1725	3618
Grp Volume(v), veh/h	428	0	1512	0	76	1506
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1725	1763
Q Serve(g_s), s	12.9	0.0	0.0	0.0	1.4	19.9
Cycle Q Clear(g_c), s	12.9	0.0	0.0	0.0	1.4	19.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	508		2369		359	2671
V/C Ratio(X)	0.84		0.64		0.21	0.56
Avail Cap(c_a), veh/h	670		2369		438	2671
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.42	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	0.0	0.0	4.4	5.6
Incr Delay (d2), s/veh	7.5	0.0	0.6	0.0	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.2	0.0	0.4	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.4	0.0	0.6	0.0	4.6	6.5
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	428		1512			1582
Approach Delay, s/veh	53.4		0.6			6.4
Approach LOS	D		A			A
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		88.8			10.0	78.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		78.3			9.5	63.3
Max Q Clear Time (g_c+I1), s		21.9			3.4	2.0
Green Ext Time (p_c), s		33.0			0.1	34.8

Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

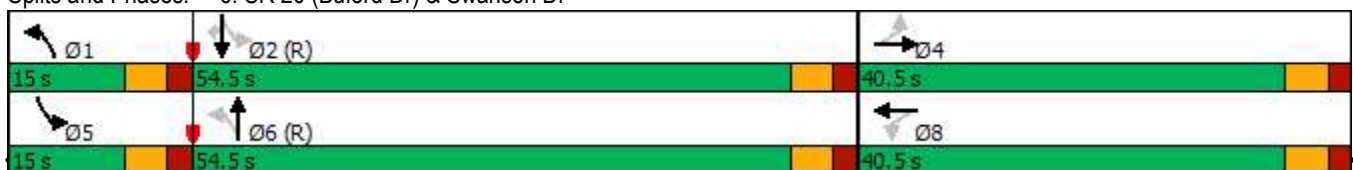


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↗	↑↑↑	↗	↑↑	↗
Traffic Volume (vph)	87	14	54	16	79	2494	61	1699	34
Future Volume (vph)	87	14	54	16	79	2494	61	1699	34
Lane Group Flow (vph)	0	195	0	146	84	2779	65	1807	36
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.81		0.57	0.45	0.85	0.37	0.80	0.03
Control Delay		58.2		36.1	25.5	19.2	17.4	17.2	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		58.2		36.1	25.5	19.2	17.4	17.2	0.2
Queue Length 50th (ft)		108		64	15	476	9	306	0
Queue Length 95th (ft)		175		120	67	#833	m30	#843	m0
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		430		444	223	3280	219	2255	1037
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.45		0.33	0.38	0.85	0.30	0.80	0.03

Intersection Summary





















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

2b. No Build PM - Improved
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	14	82	54	16	68	79	2494	118	61	1699	34
Future Volume (veh/h)	87	14	82	54	16	68	79	2494	118	61	1699	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	15	87	57	17	72	84	2653	126	65	1807	36
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	2	2	2	2
Cap, veh/h	148	28	103	119	46	117	305	3275	154	160	2300	1026
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.65	0.65	0.08	1.00	1.00
Sat Flow, veh/h	620	174	640	460	289	729	1795	5037	236	1781	3554	1585
Grp Volume(v), veh/h	195	0	0	146	0	0	84	1796	983	65	1807	36
Grp Sat Flow(s),veh/h/ln	1435	0	0	1477	0	0	1795	1716	1843	1781	1777	1585
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	0.0	1.7	42.3	44.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	14.6	0.0	0.0	9.9	0.0	0.0	1.7	42.3	44.0	1.3	0.0	0.0
Prop In Lane	0.48		0.45	0.39		0.49	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	0	283	0	0	305	2230	1198	160	2300	1026
V/C Ratio(X)	0.70	0.00	0.00	0.52	0.00	0.00	0.28	0.81	0.82	0.41	0.79	0.04
Avail Cap(c_a), veh/h	508	0	0	516	0	0	384	2230	1198	244	2300	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	44.8	0.0	0.0	42.7	0.0	0.0	5.6	14.1	14.4	22.2	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	1.5	0.0	0.0	0.5	3.2	6.4	1.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	3.8	0.0	0.0	0.6	14.4	17.1	1.1	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	0.0	0.0	44.2	0.0	0.0	6.1	17.4	20.8	23.5	2.1	0.0
LnGrp LOS	D	A	A	D	A	A	A	B	C	C	A	A
Approach Vol, veh/h		195			146			2863			1908	
Approach Delay, s/veh		48.0			44.2			18.2			2.8	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	76.7		23.2	9.8	77.0		23.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	3.7	2.0		16.6	3.3	46.0		11.9				
Green Ext Time (p_c), s	0.1	36.6		1.1	0.0	3.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				14.3								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

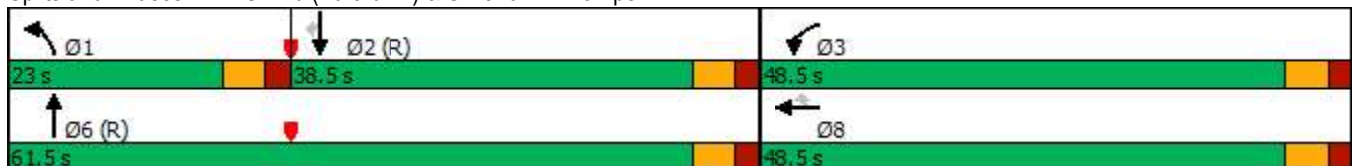


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↙↘	↑↑	↗	↙↘	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	102	77	116	345	1728	1313	509
Future Volume (vph)	102	77	116	345	1728	1313	509
Lane Group Flow (vph)	105	79	120	356	1781	1354	525
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	23.0	61.5	38.5	38.5
Total Split (%)	44.1%	44.1%	44.1%	20.9%	55.9%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.35	0.26	0.57	0.69	0.43	0.29	0.45
Control Delay	49.5	47.8	29.6	43.7	3.5	20.5	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	49.5	47.8	29.6	43.7	3.6	20.5	10.9
Queue Length 50th (ft)	37	28	28	112	83	168	112
Queue Length 95th (ft)	61	50	83	163	145	261	m274
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	572	4131	4616	1172
Starvation Cap Reductn	0	0	0	0	676	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.06	0.18	0.62	0.52	0.29	0.45

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

2b. No Build PM - Improved
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	102	77	116	345	1728	0	0	1313	509
Future Volume (veh/h)	0	0	0	102	77	116	345	1728	0	0	1313	509
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	79	0	356	1781	0	0	1354	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				192	197		419	4312	0	0	5099	
Arrive On Green				0.06	0.06	0.00	0.24	1.00	0.00	0.00	0.67	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				105	79	0	356	1781	0	0	1354	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	7.8	0.0
Cycle Q Clear(g_c), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	7.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				192	197		419	4312	0	0	5099	
V/C Ratio(X)				0.55	0.40		0.85	0.41	0.00	0.00	0.27	
Avail Cap(c_a), veh/h				1351	1389		550	4312	0	0	5099	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.82	0.82	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.6	50.2	0.0	40.7	0.0	0.0	0.0	7.2	0.0
Incr Delay (d2), s/veh				2.4	1.3	0.0	7.9	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	1.1	0.0	4.4	0.1	0.0	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.0	51.5	0.0	48.6	0.2	0.0	0.0	7.3	0.0
LnGrp LOS				D	D		D	A	A	A	A	
Approach Vol, veh/h					184			2137			1354	
Approach Delay, s/veh					52.4			8.3			7.3	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.8	79.6				98.4		11.6				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	17.5	33.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	12.8	9.8				2.0		5.3				
Green Ext Time (p_c), s	0.5	15.7				37.3		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				10.1								
HCM 6th LOS				B								
Notes												
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

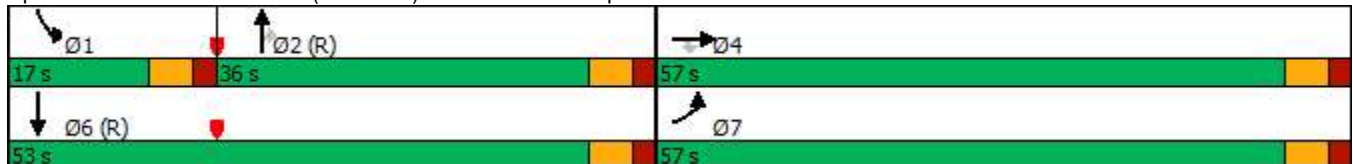


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↑↑↑↑	↘	↙↙	↑↑↑
Traffic Volume (vph)	893	780	338	1142	16	107	1310
Future Volume (vph)	893	780	338	1142	16	107	1310
Lane Group Flow (vph)	911	796	345	1165	16	109	1337
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		2		1	6
Permitted Phases			4		2		
Detector Phase	7	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	23.5	23.5	15.0	27.5
Total Split (s)	57.0	57.0	57.0	36.0	36.0	17.0	53.0
Total Split (%)	51.8%	51.8%	51.8%	32.7%	32.7%	15.5%	48.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.79	0.67	0.59	0.36	0.02	0.39	0.47
Control Delay	38.3	33.9	26.5	22.3	0.1	69.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	33.9	26.5	22.3	0.1	69.1	10.7
Queue Length 50th (ft)	299	253	155	132	0	35	329
Queue Length 95th (ft)	328	280	220	187	0	57	82
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1607	1656	783	3279	732	358	2874
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.48	0.44	0.36	0.02	0.30	0.47

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

2b. No Build PM - Improved
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	893	780	338	0	0	0	0	1142	16	107	1310	0
Future Volume (veh/h)	893	780	338	0	0	0	0	1142	16	107	1310	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	911	796	0				0	1165	0	109	1337	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1200	1234					0	3444		166	2822	0
Arrive On Green	0.35	0.35	0.00				0.00	0.45	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	911	796	0				0	1165	0	109	1337	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	25.7	20.7	0.0				0.0	10.9	0.0	3.3	0.0	0.0
Cycle Q Clear(g_c), s	25.7	20.7	0.0				0.0	10.9	0.0	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1200	1234					0	3444		166	2822	0
V/C Ratio(X)	0.76	0.64					0.00	0.34		0.66	0.47	0.00
Avail Cap(c_a), veh/h	1618	1664					0	3444		361	2822	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	31.8	30.2	0.0				0.0	19.3	0.0	48.8	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.6	0.0				0.0	0.3	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	8.8	0.0				0.0	3.6	0.0	1.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	30.8	0.0				0.0	19.6	0.0	53.0	0.5	0.0
LnGrp LOS	C	C					A	B		D	A	A
Approach Vol, veh/h		1707						1165			1446	
Approach Delay, s/veh		32.1						19.6			4.5	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	10.8	55.5		43.7				66.3				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	11.5	30.5		51.5				47.5				
Max Q Clear Time (g_c+I1), s	5.3	12.9		27.7				2.0				
Green Ext Time (p_c), s	0.1	11.3		10.5				23.6				
Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Future “Build” Intersections Analysis

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

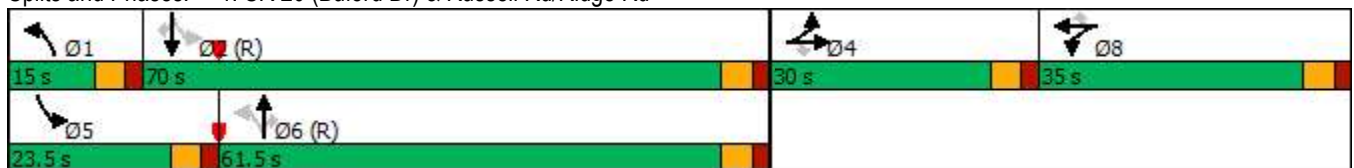


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	211	82	44	177	63	57	1044	60	81	1246	202
Future Volume (vph)	211	82	44	177	63	57	1044	60	81	1246	202
Lane Group Flow (vph)	227	88	47	329	68	61	1123	65	87	1340	217
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	23.5	34.5	34.5
Total Split (s)	30.0	30.0	30.0	35.0	35.0	15.0	61.5	61.5	23.5	70.0	70.0
Total Split (%)	20.0%	20.0%	20.0%	23.3%	23.3%	10.0%	41.0%	41.0%	15.7%	46.7%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.85	0.32	0.14	0.93	0.16	0.41	0.74	0.08	0.41	0.82	0.25
Control Delay	89.3	59.5	0.8	92.2	0.8	25.8	39.1	0.2	23.1	40.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	59.5	0.8	92.2	0.8	25.8	39.1	0.2	23.1	40.9	4.5
Queue Length 50th (ft)	216	77	0	319	0	28	486	0	41	626	5
Queue Length 95th (ft)	#339	133	0	#502	0	54	606	0	71	748	56
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	291	304	366	363	424	169	1512	785	305	1627	866
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.29	0.13	0.91	0.16	0.36	0.74	0.08	0.29	0.82	0.25

Intersection Summary
























Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

3a. Build 2024 AM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	82	44	129	177	63	57	1044	60	81	1246	202
Future Volume (veh/h)	211	82	44	129	177	63	57	1044	60	81	1246	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1826	1870	1885	1870	1841	1796	1870	1870	1826	1885
Adj Flow Rate, veh/h	227	88	47	139	190	68	61	1123	65	87	1340	217
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	5	2	1	2	4	7	2	2	5	1
Cap, veh/h	253	263	218	149	203	302	158	1653	767	224	1704	785
Arrive On Green	0.14	0.14	0.14	0.19	0.19	0.19	0.03	0.48	0.48	0.04	0.49	0.49
Sat Flow, veh/h	1795	1870	1547	780	1066	1585	1753	3413	1585	1781	3469	1598
Grp Volume(v), veh/h	227	88	47	329	0	68	61	1123	65	87	1340	217
Grp Sat Flow(s),veh/h/ln	1795	1870	1547	1846	0	1585	1753	1706	1585	1781	1735	1598
Q Serve(g_s), s	18.7	6.4	4.0	26.3	0.0	5.4	2.6	37.9	3.3	3.7	48.0	12.0
Cycle Q Clear(g_c), s	18.7	6.4	4.0	26.3	0.0	5.4	2.6	37.9	3.3	3.7	48.0	12.0
Prop In Lane	1.00		1.00	0.42		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	263	218	352	0	302	158	1653	767	224	1704	785
V/C Ratio(X)	0.90	0.33	0.22	0.94	0.00	0.23	0.39	0.68	0.08	0.39	0.79	0.28
Avail Cap(c_a), veh/h	293	305	253	363	0	312	215	1653	767	371	1704	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.4	58.1	57.1	59.8	0.0	51.3	27.3	29.7	20.8	23.9	31.6	22.5
Incr Delay (d2), s/veh	25.8	0.7	0.5	30.7	0.0	0.4	1.6	2.3	0.2	1.1	3.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	3.1	1.6	15.2	0.0	2.2	1.1	15.3	1.2	1.5	19.9	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.2	58.8	57.6	90.5	0.0	51.7	28.9	32.0	21.0	25.0	35.4	23.3
LnGrp LOS	F	E	E	F	A	D	C	C	C	C	D	C
Approach Vol, veh/h		362			397			1249			1644	
Approach Delay, s/veh		77.7			83.8			31.3			33.2	
Approach LOS		E			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	79.2		26.6	11.2	78.1		34.1				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	64.5		24.5	18.0	56.0		29.5				
Max Q Clear Time (g_c+I1), s	4.6	50.0		20.7	5.7	39.9		28.3				
Green Ext Time (p_c), s	0.0	11.6		0.5	0.1	10.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				42.5								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	22.2						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	23	136	108	1393	0	1354	40
Future Vol, veh/h	23	136	108	1393	0	1354	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	92	90	90
Heavy Vehicles, %	2	2	2	7	2	6	2
Mvmt Flow	26	151	120	1548	0	1504	44

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2518	752	1504	0	1548	0
Stage 1	1504	-	-	-	-	-
Stage 2	1014	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-
Pot Cap-1 Maneuver	~ 23	353	441	-	147	-
Stage 1	170	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 17	353	441	-	147	-
Mov Cap-2 Maneuver	~ 17	-	-	-	-	-
Stage 1	124	-	-	-	-	-
Stage 2	311	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	415.4	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	441	-	105	147	-	-
HCM Lane V/C Ratio	0.272	-	1.683	-	-	-
HCM Control Delay (s)	16.2	-	415.4	0	-	-
HCM Lane LOS	C	-	F	A	-	-
HCM 95th %tile Q(veh)	1.1	-	13.8	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	35	1	17	4	0	4	9	1462	1	6	1468	16
Future Vol, veh/h	35	1	17	4	0	4	9	1462	1	6	1468	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	40	1	19	5	0	5	10	1661	1	7	1668	18

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2533	3363	834	2530	3363	831	1668	0	0	1661	0	0
Stage 1	1682	1682	-	1681	1681	-	-	-	-	-	-	-
Stage 2	851	1681	-	849	1682	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	8	311	14	8	313	381	-	-	384	-	-
Stage 1	98	149	-	98	149	-	-	-	-	-	-	-
Stage 2	321	149	-	322	149	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 13	8	311	13	8	313	381	-	-	384	-	-
Mov Cap-2 Maneuver	70	68	-	69	68	-	-	-	-	-	-	-
Stage 1	95	146	-	95	145	-	-	-	-	-	-	-
Stage 2	308	145	-	294	146	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	81.7		32.9		0.1			0.1		
HCM LOS	F		D							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	381	-	-	70	311	138	384	-	-
HCM Lane V/C Ratio	0.027	-	-	0.584	0.062	0.066	0.018	-	-
HCM Control Delay (s)	14.7	-	-	112.1	17.3	32.9	14.5	-	-
HCM Lane LOS	B	-	-	F	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	0.2	0.2	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	16	1	61	6	0	3	30	1439	1	7	1470	14
Future Vol, veh/h	16	1	61	6	0	3	30	1439	1	7	1470	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	18	1	69	7	0	3	34	1635	1	8	1670	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2572	3389	835	2555	3389	818	1670	0	0	1635	0	0
Stage 1	1686	1686	-	1703	1703	-	-	-	-	-	-	-
Stage 2	886	1703	-	852	1686	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 13	7	311	13	7	319	381	-	-	393	-	-
Stage 1	98	149	-	95	146	-	-	-	-	-	-	-
Stage 2	306	146	-	321	149	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	6	311	9	6	319	381	-	-	393	-	-
Mov Cap-2 Maneuver	65	64	-	59	58	-	-	-	-	-	-	-
Stage 1	89	146	-	87	133	-	-	-	-	-	-	-
Stage 2	276	133	-	242	146	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	33.5		55.8		0.3		0.1	
HCM LOS	D		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	381	-	-	65	311	81	393	-	-
HCM Lane V/C Ratio	0.089	-	-	0.297	0.223	0.126	0.02	-	-
HCM Control Delay (s)	15.4	-	-	82.3	19.9	55.8	14.3	-	-
HCM Lane LOS	C	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.1	0.8	0.4	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

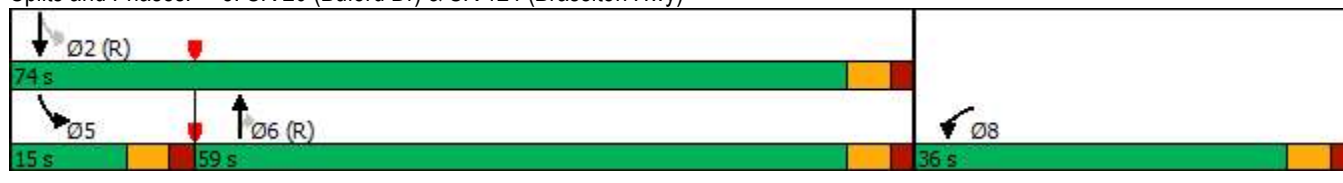
3a. Build 2024 AM
09/30/2022

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	825	1386	373	80	1574
Future Volume (vph)	825	1386	373	80	1574
Lane Group Flow (vph)	903	1444	389	83	1640
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	36.0	59.0	59.0	15.0	74.0
Total Split (%)	32.7%	53.6%	53.6%	13.6%	67.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.96	0.81	0.39	0.46	0.76
Control Delay	59.7	15.8	1.8	19.4	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	15.8	1.8	19.4	17.9
Queue Length 50th (ft)	321	336	0	22	407
Queue Length 95th (ft)	#448	484	39	56	501
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	953	1774	986	207	2148
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.81	0.39	0.40	0.76

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

3a. Build 2024 AM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶↶		↕↕	↷	↶	↕↕	
Traffic Volume (veh/h)	825	42	1386	373	80	1574	
Future Volume (veh/h)	825	42	1386	373	80	1574	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1796	1811	1767	1826	
Adj Flow Rate, veh/h	900	0	1444	0	83	1640	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	2	3	7	6	9	5	
Cap, veh/h	962		1836		324	2185	
Arrive On Green	0.27	0.00	1.00	0.00	0.04	0.63	
Sat Flow, veh/h	3563	1572	3503	1535	1682	3561	
Grp Volume(v), veh/h	900	0	1444	0	83	1640	
Grp Sat Flow(s),veh/h/ln	1781	1572	1706	1535	1682	1735	
Q Serve(g_s), s	27.1	0.0	0.0	0.0	2.3	36.5	
Cycle Q Clear(g_c), s	27.1	0.0	0.0	0.0	2.3	36.5	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	962		1836		324	2185	
V/C Ratio(X)	0.94		0.79		0.26	0.75	
Avail Cap(c_a), veh/h	988		1836		398	2185	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.76	0.00	1.00	1.00	
Uniform Delay (d), s/veh	39.2	0.0	0.0	0.0	9.4	14.3	
Incr Delay (d2), s/veh	15.2	0.0	2.7	0.0	0.4	2.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	13.3	0.0	0.7	0.0	0.8	12.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	54.4	0.0	2.7	0.0	9.8	16.7	
LnGrp LOS	D		A		A	B	
Approach Vol, veh/h	900		1444			1723	
Approach Delay, s/veh	54.4		2.7			16.4	
Approach LOS	D		A			B	
Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		74.8			10.1	64.7	35.2
Change Period (Y+Rc), s		5.5			5.5	5.5	5.5
Max Green Setting (Gmax), s		68.5			9.5	53.5	30.5
Max Q Clear Time (g_c+I1), s		38.5			4.3	2.0	29.1
Green Ext Time (p_c), s		23.3			0.1	29.7	0.6

Intersection Summary

HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

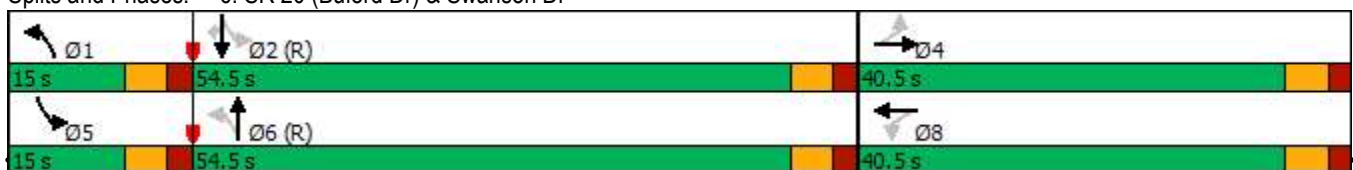


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↗	↗↗↗	↗	↗↗	↗
Traffic Volume (vph)	65	27	90	51	122	1745	54	1869	70
Future Volume (vph)	65	27	90	51	122	1745	54	1869	70
Lane Group Flow (vph)	0	188	0	199	124	1849	55	1907	71
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.66		0.83	0.58	0.61	0.28	0.93	0.07
Control Delay		41.0		65.5	36.1	10.3	7.1	24.4	2.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.0		65.5	36.1	10.3	7.1	24.4	2.0
Queue Length 50th (ft)		92		125	45	131	5	573	1
Queue Length 95th (ft)		155		194	113	278	m13	m#961	m5
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		455		399	236	3018	242	2057	953
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		0.50	0.53	0.61	0.23	0.93	0.07

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

3a. Build 2024 AM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	27	92	90	51	54	122	1745	67	54	1869	70
Future Volume (veh/h)	65	27	92	90	51	54	122	1745	67	54	1869	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	66	28	94	92	52	55	124	1781	68	55	1907	71
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	2	2	2	7	3	2	2	2
Cap, veh/h	117	54	127	143	74	65	284	3102	118	239	2247	1002
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.07	1.00	1.00
Sat Flow, veh/h	421	314	735	552	425	373	1781	4847	185	1781	3554	1585
Grp Volume(v), veh/h	188	0	0	199	0	0	124	1201	648	55	1907	71
Grp Sat Flow(s),veh/h/ln	1471	0	0	1349	0	0	1781	1635	1763	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	2.7	23.0	23.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	13.3	0.0	0.0	16.1	0.0	0.0	2.7	23.0	23.0	1.2	0.0	0.0
Prop In Lane	0.35		0.50	0.46		0.28	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	299	0	0	281	0	0	284	2092	1128	239	2247	1002
V/C Ratio(X)	0.63	0.00	0.00	0.71	0.00	0.00	0.44	0.57	0.57	0.23	0.85	0.07
Avail Cap(c_a), veh/h	516	0	0	495	0	0	358	2092	1128	327	2247	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.44	0.44	0.44
Uniform Delay (d), s/veh	42.9	0.0	0.0	44.2	0.0	0.0	6.2	11.3	11.3	8.7	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.3	0.0	0.0	1.1	1.2	2.1	0.2	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	5.5	0.0	0.0	0.9	7.4	8.3	0.4	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	0.0	0.0	47.4	0.0	0.0	7.2	12.4	13.4	8.9	1.9	0.1
LnGrp LOS	D	A	A	D	A	A	A	B	B	A	A	A
Approach Vol, veh/h		188			199			1973			2033	
Approach Delay, s/veh		45.0			47.4			12.4			2.0	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	75.1		24.5	9.6	75.9		24.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	4.7	2.0		15.3	3.2	25.0		18.1				
Green Ext Time (p_c), s	0.1	38.7		1.1	0.0	20.1		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.6								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

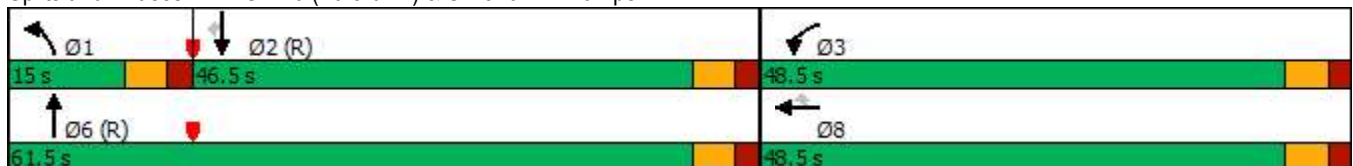


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↑↑	↗	↖↖	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	111	112	106	301	1700	1243	973
Future Volume (vph)	111	112	106	301	1700	1243	973
Lane Group Flow (vph)	112	113	107	304	1717	1256	983
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	15.0	61.5	46.5	46.5
Total Split (%)	44.1%	44.1%	44.1%	13.6%	55.9%	42.3%	42.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	0.38	0.52	0.57	0.41	0.27	0.81
Control Delay	50.9	50.6	25.7	57.0	3.3	18.6	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	50.6	25.7	57.0	3.3	18.6	21.9
Queue Length 50th (ft)	39	40	19	118	94	146	350
Queue Length 95th (ft)	65	67	71	164	113	m212	m558
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	534	4146	4600	1207
Starvation Cap Reductn	0	0	0	0	151	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.16	0.57	0.43	0.27	0.81

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

3a. Build 2024 AM
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	111	112	106	301	1700	0	0	1243	973
Future Volume (veh/h)	0	0	0	111	112	106	301	1700	0	0	1243	973
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				112	113	0	304	1717	0	0	1256	0
Peak Hour Factor				0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				207	213		298	4290	0	0	5331	
Arrive On Green				0.06	0.06	0.00	0.17	1.00	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				112	113	0	304	1717	0	0	1256	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.5	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				207	213		298	4290	0	0	5331	
V/C Ratio(X)				0.54	0.53		1.02	0.40	0.00	0.00	0.24	
Avail Cap(c_a), veh/h				1351	1389		298	4290	0	0	5331	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.2	50.2	0.0	45.5	0.0	0.0	0.0	5.8	0.0
Incr Delay (d2), s/veh				2.2	2.1	0.0	54.5	0.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	1.6	0.0	5.8	0.1	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.4	52.3	0.0	100.0	0.3	0.0	0.0	5.9	0.0
LnGrp LOS				D	D		F	A	A	A	A	
Approach Vol, veh/h					225			2021			1256	
Approach Delay, s/veh					52.3			15.3			5.9	
Approach LOS					D			B			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	82.9				97.9		12.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	11.5	8.5				2.0		5.5				
Green Ext Time (p_c), s	0.0	18.2				35.7		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		14.3
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

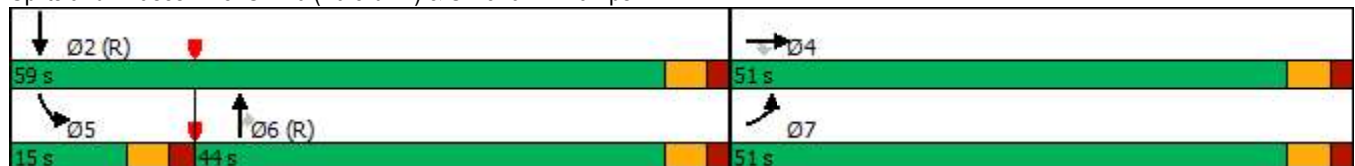


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↑↑↑↑	↗	↖↖	↑↑↑
Traffic Volume (vph)	382	132	180	1617	43	107	1247
Future Volume (vph)	382	132	180	1617	43	107	1247
Lane Group Flow (vph)	394	136	186	1667	44	110	1286
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	51.0	51.0	51.0	44.0	44.0	15.0	59.0
Total Split (%)	46.4%	46.4%	46.4%	40.0%	40.0%	13.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.69	0.23	0.57	0.37	0.04	0.40	0.34
Control Delay	49.6	39.8	30.3	11.9	0.8	67.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	39.8	30.3	11.9	0.8	67.8	6.5
Queue Length 50th (ft)	136	44	69	138	0	43	83
Queue Length 95th (ft)	178	69	136	188	5	74	70
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1420	1463	701	4553	986	309	3734
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.09	0.27	0.37	0.04	0.36	0.34

Intersection Summary




























Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

3a. Build 2024 AM
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						   		 	  	
Traffic Volume (veh/h)	382	132	180	0	0	0	0	1617	43	107	1247	0
Future Volume (veh/h)	382	132	180	0	0	0	0	1617	43	107	1247	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	394	136	0				0	1667	0	110	1286	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	516	531					0	4944		166	3833	0
Arrive On Green	0.15	0.15	0.00				0.00	0.65	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	394	136	0				0	1667	0	110	1286	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	12.0	3.7	0.0				0.0	10.8	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	12.0	3.7	0.0				0.0	10.8	0.0	3.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	516	531					0	4944		166	3833	0
V/C Ratio(X)	0.76	0.26					0.00	0.34		0.66	0.34	0.00
Avail Cap(c_a), veh/h	1429	1470					0	4944		298	3833	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	44.9	41.4	0.0				0.0	8.5	0.0	48.9	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.0				0.0	0.2	0.0	4.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	1.7	0.0				0.0	3.1	0.0	1.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	41.6	0.0				0.0	8.7	0.0	53.2	0.2	0.0
LnGrp LOS	D	D					A	A		D	A	A
Approach Vol, veh/h		530						1667			1396	
Approach Delay, s/veh		45.9						8.7			4.4	
Approach LOS		D						A			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		88.1		21.9	10.8	77.3						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		53.5		45.5	9.5	38.5						
Max Q Clear Time (g_c+I1), s		2.0		14.0	5.4	12.8						
Green Ext Time (p_c), s		23.8		2.4	0.1	20.1						
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

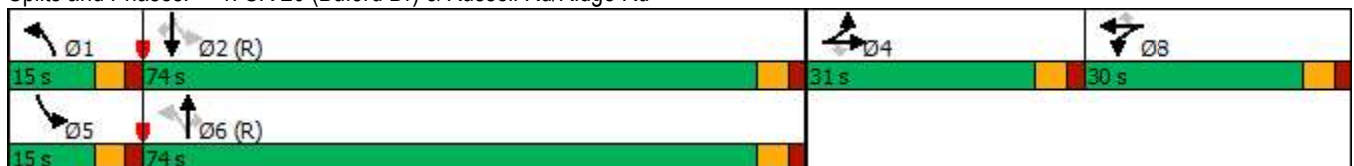


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	201	285	68	121	69	64	1270	134	135	1360	142
Future Volume (vph)	201	285	68	121	69	64	1270	134	135	1360	142
Lane Group Flow (vph)	221	313	75	288	76	70	1396	147	148	1495	156
Turn Type	Split	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8		1	6		5	2	
Permitted Phases			4		8	6		6	2		2
Detector Phase	4	4	4	8	8	1	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	31.0	31.0	31.0	30.0	30.0	15.0	74.0	74.0	15.0	74.0	74.0
Total Split (%)	20.7%	20.7%	20.7%	20.0%	20.0%	10.0%	49.3%	49.3%	10.0%	49.3%	49.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.74	0.99	0.21	0.97	0.22	0.49	0.86	0.19	0.93	0.89	0.19
Control Delay	74.5	109.4	5.8	107.4	6.2	31.1	43.4	9.3	88.9	43.4	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.5	109.4	5.8	107.4	6.2	31.1	43.4	9.3	88.9	43.4	5.2
Queue Length 50th (ft)	208	310	0	284	0	31	635	27	96	707	8
Queue Length 95th (ft)	#318	#511	28	#476	28	68	741	70	#239	#881	51
Internal Link Dist (ft)		601		820			1510			563	
Turn Bay Length (ft)	330		335		170	290		75	265		375
Base Capacity (vph)	300	316	350	296	340	161	1616	776	160	1688	835
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.99	0.21	0.97	0.22	0.43	0.86	0.19	0.93	0.89	0.19

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

3a. Build 2024 PM
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	285	68	141	121	69	64	1270	134	135	1360	142
Future Volume (veh/h)	201	285	68	141	121	69	64	1270	134	135	1360	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	221	313	75	155	133	76	70	1396	147	148	1495	156
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	3	2
Cap, veh/h	303	318	269	160	137	259	139	1646	734	188	1719	773
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16	0.03	0.46	0.46	0.06	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	980	841	1585	1781	3554	1585	1781	3526	1585
Grp Volume(v), veh/h	221	313	75	288	0	76	70	1396	147	148	1495	156
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1821	0	1585	1781	1777	1585	1781	1763	1585
Q Serve(g_s), s	17.6	25.0	6.2	23.6	0.0	6.3	3.1	52.1	8.2	6.5	56.6	8.4
Cycle Q Clear(g_c), s	17.6	25.0	6.2	23.6	0.0	6.3	3.1	52.1	8.2	6.5	56.6	8.4
Prop In Lane	1.00		1.00	0.54		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	318	269	297	0	259	139	1646	734	188	1719	773
V/C Ratio(X)	0.73	0.98	0.28	0.97	0.00	0.29	0.50	0.85	0.20	0.79	0.87	0.20
Avail Cap(c_a), veh/h	303	318	269	297	0	259	194	1646	734	200	1719	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	62.1	54.2	62.4	0.0	55.1	32.0	35.6	23.8	32.6	34.2	21.8
Incr Delay (d2), s/veh	8.6	46.1	0.6	43.4	0.0	0.6	2.8	5.6	0.6	17.7	6.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	15.8	2.5	14.4	0.0	2.6	1.4	22.7	3.1	3.5	24.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	108.1	54.8	105.7	0.0	55.8	34.8	41.2	24.4	50.3	40.5	22.4
LnGrp LOS	E	F	D	F	A	E	C	D	C	D	D	C
Approach Vol, veh/h		609			364			1613			1799	
Approach Delay, s/veh		86.9			95.3			39.4			39.7	
Approach LOS		F			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	78.6		31.0	14.0	75.0		30.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	68.5		25.5	9.5	68.5		24.5				
Max Q Clear Time (g_c+I1), s	5.1	58.6		27.0	8.5	54.1		25.6				
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	11.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				50.8								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	2.5						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y		Y	↑↑	↓	↑↑	↑
Traffic Vol, veh/h	12	167	66	1584	0	1433	29
Future Vol, veh/h	12	167	66	1584	0	1433	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	-	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	94	94	94	94	92	94	94
Heavy Vehicles, %	2	2	2	2	2	3	2
Mvmt Flow	13	178	70	1685	0	1524	31

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2507	762	1524
Stage 1	1524	-	-
Stage 2	983	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	23	347	434
Stage 1	166	-	-
Stage 2	323	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	19	347	434
Mov Cap-2 Maneuver	19	-	-
Stage 1	139	-	-
Stage 2	323	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.4	0.6	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	434	-	283	119	-	-
HCM Lane V/C Ratio	0.162	-	0.673	-	-	-
HCM Control Delay (s)	14.9	-	40.4	0	-	-
HCM Lane LOS	B	-	E	A	-	-
HCM 95th %tile Q(veh)	0.6	-	4.5	0	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕	↗	↕	↗	↕
Traffic Vol, veh/h	40	1	17	8	2	2	26	1606	6	4	1548	48
Future Vol, veh/h	40	1	17	8	2	2	26	1606	6	4	1548	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	1	2	2	3	2
Mvmt Flow	43	1	18	9	2	2	28	1709	6	4	1647	51

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2567	3420	824	2597	3420	855	1647	0	0	1709	0	0
Stage 1	1655	1655	-	1765	1765	-	-	-	-	-	-	-
Stage 2	912	1765	-	832	1655	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 13	7	316	12	7	302	389	-	-	368	-	-
Stage 1	102	154	-	87	136	-	-	-	-	-	-	-
Stage 2	295	136	-	330	154	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	6	316	10	6	302	389	-	-	368	-	-
Mov Cap-2 Maneuver	68	64	-	60	60	-	-	-	-	-	-	-
Stage 1	95	152	-	81	126	-	-	-	-	-	-	-
Stage 2	267	126	-	306	152	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	93.3	65.5	0.2	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	389	-	-	68	316	72	368	-	-
HCM Lane V/C Ratio	0.071	-	-	0.641	0.057	0.177	0.012	-	-
HCM Control Delay (s)	15	-	-	124.9	17.1	65.5	14.9	-	-
HCM Lane LOS	B	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.8	0.2	0.6	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕	↗	↗	↕	↗
Traffic Vol, veh/h	27	1	61	8	2	4	89	1609	9	4	1548	21
Future Vol, veh/h	27	1	61	8	2	4	89	1609	9	4	1548	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	1	11	2	3	2
Mvmt Flow	28	1	64	8	2	4	94	1694	9	4	1629	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2673	3519	815	2705	3519	847	1629	0	0	1694	0	0
Stage 1	1637	1637	-	1882	1882	-	-	-	-	-	-	-
Stage 2	1036	1882	-	823	1637	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 11	6	321	10	6	305	395	-	-	373	-	-
Stage 1	105	157	-	73	118	-	-	-	-	-	-	-
Stage 2	248	118	-	334	157	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 8	5	321	~ 6	5	305	395	-	-	373	-	-
Mov Cap-2 Maneuver	53	53	-	40	35	-	-	-	-	-	-	-
Stage 1	80	155	-	56	90	-	-	-	-	-	-	-
Stage 2	182	90	-	263	155	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	56.2	99.6	0.9	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	395	-	-	53	321	52	373	-	-
HCM Lane V/C Ratio	0.237	-	-	0.556	0.2	0.283	0.011	-	-
HCM Control Delay (s)	16.9	-	-	137.3	19	99.6	14.8	-	-
HCM Lane LOS	C	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	0.7	1	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

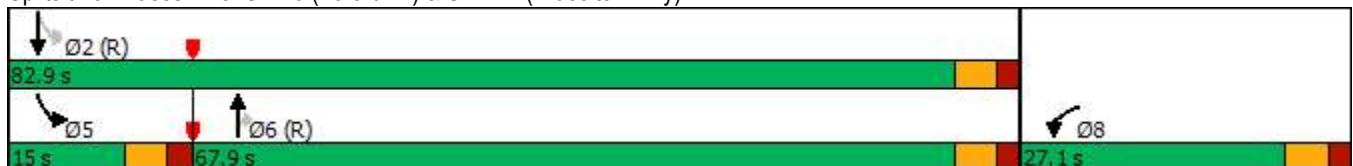
Timings
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	377	1560	825	92	1530
Future Volume (vph)	377	1560	825	92	1530
Lane Group Flow (vph)	458	1592	842	94	1561
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	27.1	67.9	67.9	15.0	82.9
Total Split (%)	24.6%	61.7%	61.7%	13.6%	75.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.77	0.71	0.64	0.45	0.61
Control Delay	50.6	3.6	3.0	13.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	3.6	3.0	13.5	8.9
Queue Length 50th (ft)	153	48	0	17	252
Queue Length 95th (ft)	205	57	m70	47	336
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	679	2229	1308	238	2551
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.71	0.64	0.39	0.61

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

3a. Build 2024 PM
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	377	72	1560	825	92	1530
Future Volume (veh/h)	377	72	1560	825	92	1530
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1856
Adj Flow Rate, veh/h	453	0	1592	0	94	1561
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	6	3
Cap, veh/h	534		2336		343	2644
Arrive On Green	0.15	0.00	1.00	0.00	0.04	0.75
Sat Flow, veh/h	3563	1585	3647	1585	1725	3618
Grp Volume(v), veh/h	453	0	1592	0	94	1561
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1725	1763
Q Serve(g_s), s	13.6	0.0	0.0	0.0	1.8	21.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	0.0	1.8	21.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	534		2336		343	2644
V/C Ratio(X)	0.85		0.68		0.27	0.59
Avail Cap(c_a), veh/h	700		2336		418	2644
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.35	0.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	0.0	0.0	0.0	4.6	6.2
Incr Delay (d2), s/veh	7.6	0.0	0.6	0.0	0.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	0.2	0.0	0.5	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.1	0.0	0.6	0.0	5.1	7.1
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	453		1592			1655
Approach Delay, s/veh	53.1		0.6			7.0
Approach LOS	D		A			A
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		88.0			10.2	77.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		77.4			9.5	62.4
Max Q Clear Time (g_c+I1), s		23.8			3.8	2.0
Green Ext Time (p_c), s		33.6			0.1	37.2

Intersection Summary

HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

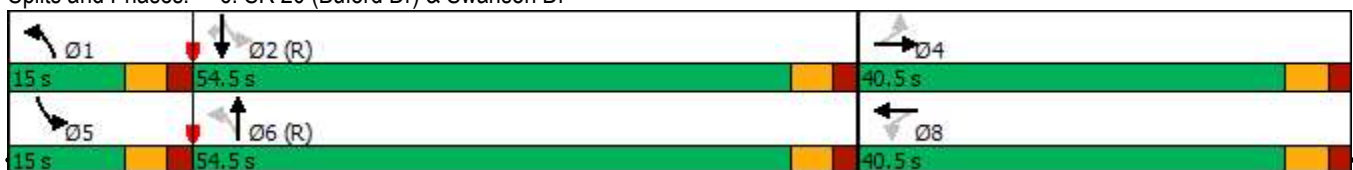


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↗	↙	↗	↗
Traffic Volume (vph)	91	14	54	16	79	2559	67	1744	36
Future Volume (vph)	91	14	54	16	79	2559	67	1744	36
Lane Group Flow (vph)	0	199	0	156	84	2848	71	1855	38
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.82		0.58	0.45	0.88	0.40	0.83	0.04
Control Delay		59.6		34.4	25.4	22.0	18.9	18.4	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		59.6		34.4	25.4	22.0	18.9	18.4	0.2
Queue Length 50th (ft)		112		66	16	516	10	486	0
Queue Length 95th (ft)		181		124	70	#886	m35	#894	m0
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		419		456	224	3238	220	2230	1027
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.47		0.34	0.38	0.88	0.32	0.83	0.04

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

3a. Build 2024 PM
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	14	82	54	16	77	79	2559	118	67	1744	36
Future Volume (veh/h)	91	14	82	54	16	77	79	2559	118	67	1744	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	15	87	57	17	82	84	2722	126	71	1855	38
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	2	2	2	2
Cap, veh/h	153	28	102	117	47	131	295	3241	148	157	2277	1016
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.08	1.00	1.00
Sat Flow, veh/h	621	168	613	431	279	787	1795	5044	230	1781	3554	1585
Grp Volume(v), veh/h	199	0	0	156	0	0	84	1839	1009	71	1855	38
Grp Sat Flow(s),veh/h/ln	1402	0	0	1496	0	0	1795	1716	1844	1781	1777	1585
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	1.7	45.4	47.5	1.5	0.0	0.0
Cycle Q Clear(g_c), s	15.3	0.0	0.0	10.4	0.0	0.0	1.7	45.4	47.5	1.5	0.0	0.0
Prop In Lane	0.49		0.44	0.37		0.53	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	0	295	0	0	295	2205	1185	157	2277	1016
V/C Ratio(X)	0.70	0.00	0.00	0.53	0.00	0.00	0.28	0.83	0.85	0.45	0.81	0.04
Avail Cap(c_a), veh/h	501	0	0	519	0	0	375	2205	1185	239	2277	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	44.5	0.0	0.0	42.3	0.0	0.0	5.8	15.1	15.5	24.0	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	1.5	0.0	0.0	0.5	3.9	7.8	1.5	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	4.0	0.0	0.0	0.6	15.8	19.0	1.2	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	0.0	0.0	43.8	0.0	0.0	6.3	19.1	23.3	25.5	2.4	0.0
LnGrp LOS	D	A	A	D	A	A	A	B	C	C	A	A
Approach Vol, veh/h		199			156			2932			1964	
Approach Delay, s/veh		47.7			43.8			20.2			3.2	
Approach LOS		D			D			C			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	76.0		23.9	9.9	76.2		23.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	3.7	2.0		17.3	3.5	49.5		12.4				
Green Ext Time (p_c), s	0.1	37.5		1.1	0.1	0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

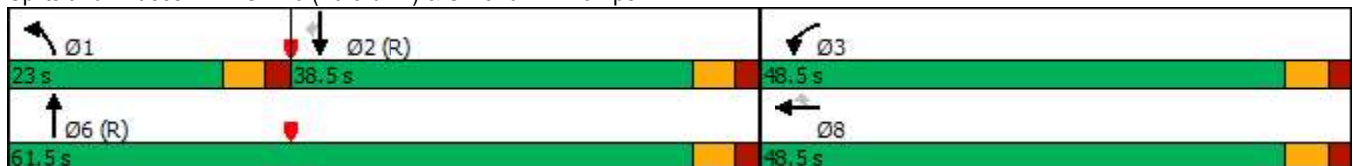


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑↑	↑↑↑↑	↖
Traffic Volume (vph)	102	77	134	345	1769	1335	527
Future Volume (vph)	102	77	134	345	1769	1335	527
Lane Group Flow (vph)	105	79	138	356	1824	1376	543
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	23.0	61.5	38.5	38.5
Total Split (%)	44.1%	44.1%	44.1%	20.9%	55.9%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.32	0.24	0.62	0.69	0.45	0.30	0.46
Control Delay	47.9	46.3	33.9	44.0	3.7	21.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	47.9	46.3	33.9	44.0	3.8	21.7	11.6
Queue Length 50th (ft)	36	27	40	112	89	179	123
Queue Length 95th (ft)	60	49	99	162	163	273	m271
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	572	4092	4559	1171
Starvation Cap Reductn	0	0	0	0	654	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.06	0.21	0.62	0.53	0.30	0.46

Intersection Summary

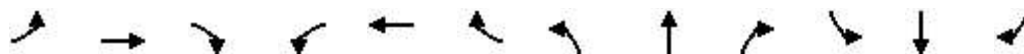
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

3a. Build 2024 PM
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	102	77	134	345	1769	0	0	1335	527
Future Volume (veh/h)	0	0	0	102	77	134	345	1769	0	0	1335	527
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	79	0	356	1824	0	0	1376	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				192	197		419	4312	0	0	5099	
Arrive On Green				0.06	0.06	0.00	0.24	1.00	0.00	0.00	0.67	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				105	79	0	356	1824	0	0	1376	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	8.0	0.0
Cycle Q Clear(g_c), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	8.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				192	197		419	4312	0	0	5099	
V/C Ratio(X)				0.55	0.40		0.85	0.42	0.00	0.00	0.27	
Avail Cap(c_a), veh/h				1351	1389		550	4312	0	0	5099	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.81	0.81	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.6	50.2	0.0	40.7	0.0	0.0	0.0	7.2	0.0
Incr Delay (d2), s/veh				2.4	1.3	0.0	7.8	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	1.1	0.0	4.4	0.1	0.0	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.0	51.5	0.0	48.5	0.2	0.0	0.0	7.3	0.0
LnGrp LOS				D	D		D	A	A	A	A	
Approach Vol, veh/h					184			2180			1376	
Approach Delay, s/veh					52.4			8.1			7.3	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.8	79.6				98.4		11.6				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	17.5	33.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	12.8	10.0				2.0		5.3				
Green Ext Time (p_c), s	0.5	15.8				38.3		0.9				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

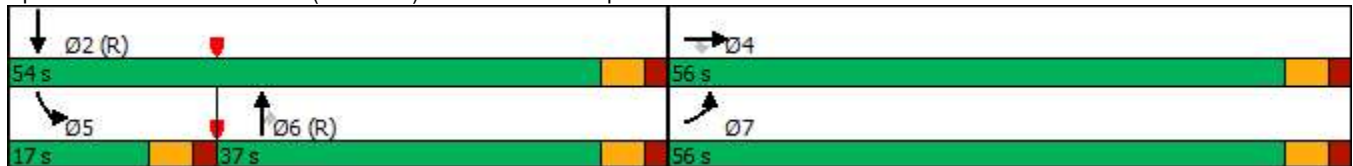


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↑↑↑↑	↗	↖↖	↑↑↑
Traffic Volume (vph)	920	780	338	1156	16	119	1320
Future Volume (vph)	920	780	338	1156	16	119	1320
Lane Group Flow (vph)	939	796	345	1180	16	121	1347
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		6		5	2
Permitted Phases			4		6		
Detector Phase	7	4	4	6	6	5	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	27.5	27.5	15.0	27.5
Total Split (s)	56.0	56.0	56.0	37.0	37.0	17.0	54.0
Total Split (%)	50.9%	50.9%	50.9%	33.6%	33.6%	15.5%	49.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.80	0.66	0.58	0.37	0.02	0.42	0.48
Control Delay	37.9	32.9	25.8	23.2	0.1	66.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	32.9	25.8	23.2	0.1	66.2	10.7
Queue Length 50th (ft)	307	249	153	137	0	35	331
Queue Length 95th (ft)	342	281	220	190	0	64	81
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1576	1624	769	3194	715	359	2833
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.49	0.45	0.37	0.02	0.34	0.48

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

3a. Build 2024 PM
 09/30/2022

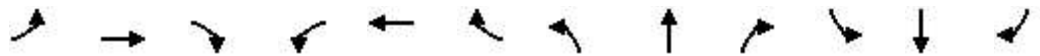
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	920	780	338	0	0	0	0	1156	16	119	1320	0
Future Volume (veh/h)	920	780	338	0	0	0	0	1156	16	119	1320	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	939	796	0				0	1180	0	121	1347	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1220	1254					0	3372		179	2793	0
Arrive On Green	0.35	0.35	0.00				0.00	0.45	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	939	796	0				0	1180	0	121	1347	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	26.6	20.5	0.0				0.0	11.3	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	26.6	20.5	0.0				0.0	11.3	0.0	3.7	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1220	1254					0	3372		179	2793	0
V/C Ratio(X)	0.77	0.63					0.00	0.35		0.67	0.48	0.00
Avail Cap(c_a), veh/h	1586	1631					0	3372		361	2793	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	31.6	29.7	0.0				0.0	20.1	0.0	48.4	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.5	0.0				0.0	0.3	0.0	4.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	8.7	0.0				0.0	3.8	0.0	1.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	30.2	0.0				0.0	20.3	0.0	52.6	0.6	0.0
LnGrp LOS	C	C					A	C		D	A	A
Approach Vol, veh/h		1735						1180			1468	
Approach Delay, s/veh		31.9						20.3			4.9	
Approach LOS		C						C			A	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		65.7		44.3	11.2	54.5						
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5						
Max Green Setting (Gmax), s		48.5		50.5	11.5	31.5						
Max Q Clear Time (g_c+I1), s		2.0		28.6	5.7	13.3						
Green Ext Time (p_c), s		24.1		10.3	0.1	11.7						
Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Future “Build” Intersections Analysis with Improvements

Timings

1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

09/30/2022

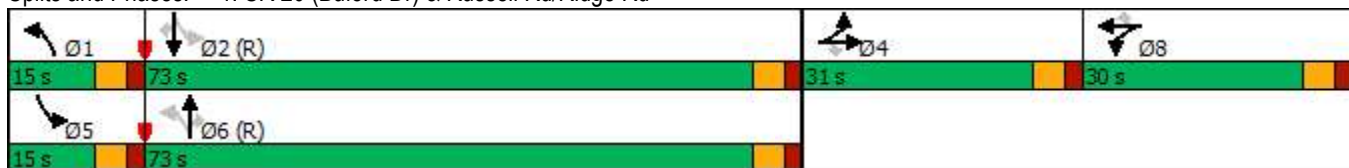


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	211	82	44	129	177	63	57	1044	60	81	1246	202
Future Volume (vph)	211	82	44	129	177	63	57	1044	60	81	1246	202
Lane Group Flow (vph)	227	88	47	139	190	68	61	1123	65	87	1340	217
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	4	4	4	8	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	31.0	31.0	31.0	30.0	30.0	30.0	15.0	73.0	73.0	15.0	73.0	73.0
Total Split (%)	20.8%	20.8%	20.8%	20.1%	20.1%	20.1%	10.1%	49.0%	49.0%	10.1%	49.0%	49.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.84	0.31	0.15	0.59	0.76	0.23	0.33	0.65	0.08	0.36	0.73	0.23
Control Delay	86.4	58.4	1.0	70.8	81.5	5.1	18.9	30.3	1.4	18.1	32.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.4	58.4	1.0	70.8	81.5	5.1	18.9	30.3	1.4	18.1	32.3	3.4
Queue Length 50th (ft)	214	76	0	129	180	0	24	426	0	35	549	0
Queue Length 95th (ft)	#325	131	0	197	261	19	50	551	10	67	711	47
Internal Link Dist (ft)		601			820			1510			563	
Turn Bay Length (ft)	330		335	210		170	290		75	265		375
Base Capacity (vph)	305	318	345	291	309	343	205	1727	858	258	1826	951
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.28	0.14	0.48	0.61	0.20	0.30	0.65	0.08	0.34	0.73	0.23

Intersection Summary

Cycle Length: 149
 Actuated Cycle Length: 149
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

3a. Build 2024 AM - Improved
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	82	44	129	177	63	57	1044	60	81	1246	202
Future Volume (veh/h)	211	82	44	129	177	63	57	1044	60	81	1246	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1826	1870	1885	1870	1841	1796	1870	1870	1826	1885
Adj Flow Rate, veh/h	227	88	47	139	190	68	61	1123	65	87	1340	217
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	5	2	1	2	4	7	2	2	5	1
Cap, veh/h	254	265	219	212	224	188	195	1905	885	270	1946	896
Arrive On Green	0.14	0.14	0.14	0.12	0.12	0.12	0.03	0.56	0.56	0.03	0.56	0.56
Sat Flow, veh/h	1795	1870	1547	1781	1885	1585	1753	3413	1585	1781	3469	1598
Grp Volume(v), veh/h	227	88	47	139	190	68	61	1123	65	87	1340	217
Grp Sat Flow(s),veh/h/ln	1795	1870	1547	1781	1885	1585	1753	1706	1585	1781	1735	1598
Q Serve(g_s), s	18.5	6.3	4.0	11.1	14.7	5.9	2.2	32.3	2.8	3.1	41.2	10.3
Cycle Q Clear(g_c), s	18.5	6.3	4.0	11.1	14.7	5.9	2.2	32.3	2.8	3.1	41.2	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	254	265	219	212	224	188	195	1905	885	270	1946	896
V/C Ratio(X)	0.89	0.33	0.21	0.66	0.85	0.36	0.31	0.59	0.07	0.32	0.69	0.24
Avail Cap(c_a), veh/h	307	320	265	293	310	261	253	1905	885	323	1946	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.8	57.6	56.6	62.7	64.3	60.4	19.9	21.7	15.2	17.3	23.4	16.6
Incr Delay (d2), s/veh	23.5	0.7	0.5	3.4	14.5	1.2	0.9	1.3	0.2	0.7	2.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	3.0	1.6	5.2	7.9	2.4	0.9	12.5	1.0	1.2	16.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.3	58.3	57.1	66.2	78.8	61.6	20.8	23.0	15.3	18.0	25.4	17.3
LnGrp LOS	F	E	E	E	E	E	C	C	B	B	C	B
Approach Vol, veh/h		362			397			1249			1644	
Approach Delay, s/veh		75.7			71.4			22.5			23.9	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	89.1		26.6	10.5	88.7		23.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	67.5		25.5	9.5	67.5		24.5				
Max Q Clear Time (g_c+I1), s	4.2	43.2		20.5	5.1	34.3		16.7				
Green Ext Time (p_c), s	0.0	17.8		0.6	0.1	17.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				33.8								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	7.1						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖	↗	↖	↕	↘	↕	↗
Traffic Vol, veh/h	23	136	108	1393	0	1354	40
Future Vol, veh/h	23	136	108	1393	0	1354	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	0	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	92	90	90
Heavy Vehicles, %	2	2	2	7	2	6	2
Mvmt Flow	26	151	120	1548	0	1504	44

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2518	752	1504
Stage 1	1504	-	-
Stage 2	1014	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	~ 23	353	441
Stage 1	170	-	-
Stage 2	311	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 17	353	441
Mov Cap-2 Maneuver	~ 17	-	-
Stage 1	124	-	-
Stage 2	311	-	-

Approach	EB	NB	SB
HCM Control Delay, s	124.2	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBU	SBT	SBR
Capacity (veh/h)	441	-	17	353	147	-	-
HCM Lane V/C Ratio	0.272	-	1.503	0.428	-	-	-
HCM Control Delay (s)	16.2	-	\$ 725.1	22.6	0	-	-
HCM Lane LOS	C	-	F	C	A	-	-
HCM 95th %tile Q(veh)	1.1	-	3.7	2.1	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	35	1	17	4	0	4	9	1462	1	6	1468	16
Future Vol, veh/h	35	1	17	4	0	4	9	1462	1	6	1468	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	40	1	19	5	0	5	10	1661	1	7	1668	18

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	2533	3363	834	2530	3363	831	1668	0	0	1661	0	0
Stage 1	1682	1682	-	1681	1681	-	-	-	-	-	-	-
Stage 2	851	1681	-	849	1682	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 14	8	311	14	8	313	381	-	-	384	-	-
Stage 1	98	149	-	98	149	-	-	-	-	-	-	-
Stage 2	321	149	-	322	149	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 13	8	311	13	8	313	381	-	-	384	-	-
Mov Cap-2 Maneuver	70	68	-	69	68	-	-	-	-	-	-	-
Stage 1	95	146	-	95	145	-	-	-	-	-	-	-
Stage 2	308	145	-	294	146	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	81.7		32.9		0.1			0.1		
HCM LOS	F		D							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	381	-	-	70	311	138	384	-	-
HCM Lane V/C Ratio	0.027	-	-	0.584	0.062	0.066	0.018	-	-
HCM Control Delay (s)	14.7	-	-	112.1	17.3	32.9	14.5	-	-
HCM Lane LOS	B	-	-	F	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	0.2	0.2	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	16	1	61	6	0	3	30	1439	1	7	1470	14
Future Vol, veh/h	16	1	61	6	0	3	30	1439	1	7	1470	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	5	2
Mvmt Flow	18	1	69	7	0	3	34	1635	1	8	1670	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2572	3389	835	2555	3389	818	1670	0	0	1635	0	0
Stage 1	1686	1686	-	1703	1703	-	-	-	-	-	-	-
Stage 2	886	1703	-	852	1686	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 13	7	311	13	7	319	381	-	-	393	-	-
Stage 1	98	149	-	95	146	-	-	-	-	-	-	-
Stage 2	306	146	-	321	149	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	6	311	9	6	319	381	-	-	393	-	-
Mov Cap-2 Maneuver	65	64	-	59	58	-	-	-	-	-	-	-
Stage 1	89	146	-	87	133	-	-	-	-	-	-	-
Stage 2	276	133	-	242	146	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	33.5		55.8		0.3		0.1	
HCM LOS	D		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	381	-	-	65	311	81	393	-	-
HCM Lane V/C Ratio	0.089	-	-	0.297	0.223	0.126	0.02	-	-
HCM Control Delay (s)	15.4	-	-	82.3	19.9	55.8	14.3	-	-
HCM Lane LOS	C	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.1	0.8	0.4	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

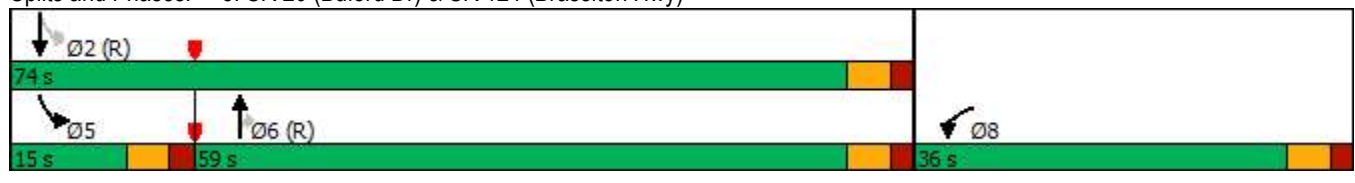
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	825	1386	373	80	1574
Future Volume (vph)	825	1386	373	80	1574
Lane Group Flow (vph)	903	1444	389	83	1640
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	36.0	59.0	59.0	15.0	74.0
Total Split (%)	32.7%	53.6%	53.6%	13.6%	67.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.96	0.81	0.39	0.46	0.76
Control Delay	59.7	15.8	1.8	19.4	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	15.8	1.8	19.4	17.9
Queue Length 50th (ft)	321	336	0	22	407
Queue Length 95th (ft)	#448	484	39	56	501
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	953	1774	986	207	2148
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.81	0.39	0.40	0.76

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

3a. Build 2024 AM - Improved
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶↶		↶↶	↷	↶	↶↶	
Traffic Volume (veh/h)	825	42	1386	373	80	1574	
Future Volume (veh/h)	825	42	1386	373	80	1574	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1796	1811	1767	1826	
Adj Flow Rate, veh/h	900	0	1444	0	83	1640	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	2	3	7	6	9	5	
Cap, veh/h	962		1836		324	2185	
Arrive On Green	0.27	0.00	1.00	0.00	0.04	0.63	
Sat Flow, veh/h	3563	1572	3503	1535	1682	3561	
Grp Volume(v), veh/h	900	0	1444	0	83	1640	
Grp Sat Flow(s),veh/h/ln	1781	1572	1706	1535	1682	1735	
Q Serve(g_s), s	27.1	0.0	0.0	0.0	2.3	36.5	
Cycle Q Clear(g_c), s	27.1	0.0	0.0	0.0	2.3	36.5	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	962		1836		324	2185	
V/C Ratio(X)	0.94		0.79		0.26	0.75	
Avail Cap(c_a), veh/h	988		1836		398	2185	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.76	0.00	1.00	1.00	
Uniform Delay (d), s/veh	39.2	0.0	0.0	0.0	9.4	14.3	
Incr Delay (d2), s/veh	15.2	0.0	2.7	0.0	0.4	2.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	13.3	0.0	0.7	0.0	0.8	12.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	54.4	0.0	2.7	0.0	9.8	16.7	
LnGrp LOS	D		A		A	B	
Approach Vol, veh/h	900		1444			1723	
Approach Delay, s/veh	54.4		2.7			16.4	
Approach LOS	D		A			B	
Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		74.8			10.1	64.7	35.2
Change Period (Y+Rc), s		5.5			5.5	5.5	5.5
Max Green Setting (Gmax), s		68.5			9.5	53.5	30.5
Max Q Clear Time (g_c+I1), s		38.5			4.3	2.0	29.1
Green Ext Time (p_c), s		23.3			0.1	29.7	0.6

Intersection Summary						
HCM 6th Ctrl Delay			19.9			
HCM 6th LOS			B			

Notes
 User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

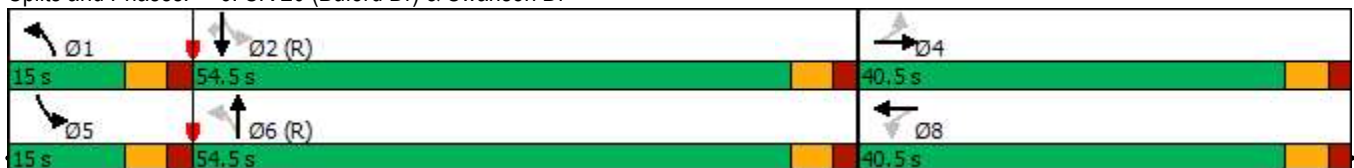


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↖	↗	↖	↗	↗
Traffic Volume (vph)	65	27	90	51	122	1745	54	1869	70
Future Volume (vph)	65	27	90	51	122	1745	54	1869	70
Lane Group Flow (vph)	0	188	0	199	124	1849	55	1907	71
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.66		0.83	0.58	0.61	0.28	0.93	0.07
Control Delay		41.0		65.5	36.1	10.3	7.1	24.4	2.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.0		65.5	36.1	10.3	7.1	24.4	2.0
Queue Length 50th (ft)		92		125	45	131	5	573	1
Queue Length 95th (ft)		155		194	113	278	m13	m#961	m5
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		455		399	236	3018	242	2057	953
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.41		0.50	0.53	0.61	0.23	0.93	0.07

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

3a. Build 2024 AM - Improved
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	27	92	90	51	54	122	1745	67	54	1869	70
Future Volume (veh/h)	65	27	92	90	51	54	122	1745	67	54	1869	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1870	1870	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	66	28	94	92	52	55	124	1781	68	55	1907	71
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	2	2	2	7	3	2	2	2
Cap, veh/h	117	54	127	143	74	65	284	3102	118	239	2247	1002
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.07	1.00	1.00
Sat Flow, veh/h	421	314	735	552	425	373	1781	4847	185	1781	3554	1585
Grp Volume(v), veh/h	188	0	0	199	0	0	124	1201	648	55	1907	71
Grp Sat Flow(s),veh/h/ln	1471	0	0	1349	0	0	1781	1635	1763	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	2.7	23.0	23.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	13.3	0.0	0.0	16.1	0.0	0.0	2.7	23.0	23.0	1.2	0.0	0.0
Prop In Lane	0.35		0.50	0.46		0.28	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	299	0	0	281	0	0	284	2092	1128	239	2247	1002
V/C Ratio(X)	0.63	0.00	0.00	0.71	0.00	0.00	0.44	0.57	0.57	0.23	0.85	0.07
Avail Cap(c_a), veh/h	516	0	0	495	0	0	358	2092	1128	327	2247	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.44	0.44	0.44
Uniform Delay (d), s/veh	42.9	0.0	0.0	44.2	0.0	0.0	6.2	11.3	11.3	8.7	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.3	0.0	0.0	1.1	1.2	2.1	0.2	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	5.5	0.0	0.0	0.9	7.4	8.3	0.4	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	0.0	0.0	47.4	0.0	0.0	7.2	12.4	13.4	8.9	1.9	0.1
LnGrp LOS	D	A	A	D	A	A	A	B	B	A	A	A
Approach Vol, veh/h		188			199			1973			2033	
Approach Delay, s/veh		45.0			47.4			12.4			2.0	
Approach LOS		D			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	75.1		24.5	9.6	75.9		24.5				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	4.7	2.0		15.3	3.2	25.0		18.1				
Green Ext Time (p_c), s	0.1	38.7		1.1	0.0	20.1		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.6								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

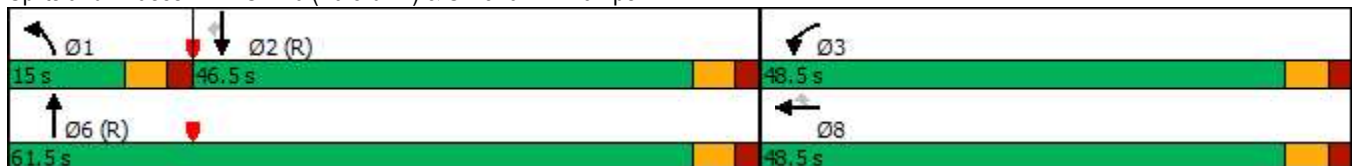


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↙↘	↑↑	↗	↙↘	↑↑↑	↑↑↑↑	↗
Traffic Volume (vph)	111	112	106	301	1700	1243	973
Future Volume (vph)	111	112	106	301	1700	1243	973
Lane Group Flow (vph)	112	113	107	304	1717	1256	983
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	15.0	61.5	46.5	46.5
Total Split (%)	44.1%	44.1%	44.1%	13.6%	55.9%	42.3%	42.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.39	0.38	0.52	0.57	0.41	0.27	0.81
Control Delay	50.9	50.6	25.7	57.0	3.3	18.6	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	50.6	25.7	57.0	3.3	18.6	21.9
Queue Length 50th (ft)	39	40	19	118	94	146	350
Queue Length 95th (ft)	65	67	71	164	113	m212	m558
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	534	4146	4600	1207
Starvation Cap Reductn	0	0	0	0	151	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.08	0.16	0.57	0.43	0.27	0.81

Intersection Summary

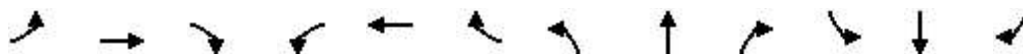
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

3a. Build 2024 AM - Improved
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	111	112	106	301	1700	0	0	1243	973
Future Volume (veh/h)	0	0	0	111	112	106	301	1700	0	0	1243	973
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				112	113	0	304	1717	0	0	1256	0
Peak Hour Factor				0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				207	213		298	4290	0	0	5331	
Arrive On Green				0.06	0.06	0.00	0.17	1.00	0.00	0.00	0.70	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				112	113	0	304	1717	0	0	1256	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				3.5	3.4	0.0	9.5	0.0	0.0	0.0	6.5	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				207	213		298	4290	0	0	5331	
V/C Ratio(X)				0.54	0.53		1.02	0.40	0.00	0.00	0.24	
Avail Cap(c_a), veh/h				1351	1389		298	4290	0	0	5331	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.91	0.91	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.2	50.2	0.0	45.5	0.0	0.0	0.0	5.8	0.0
Incr Delay (d2), s/veh				2.2	2.1	0.0	54.5	0.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	1.6	0.0	5.8	0.1	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.4	52.3	0.0	100.0	0.3	0.0	0.0	5.9	0.0
LnGrp LOS				D	D		F	A	A	A	A	
Approach Vol, veh/h					225			2021			1256	
Approach Delay, s/veh					52.3			15.3			5.9	
Approach LOS					D			B			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	15.0	82.9				97.9		12.1				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	9.5	41.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	11.5	8.5				2.0		5.5				
Green Ext Time (p_c), s	0.0	18.2				35.7		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		14.3
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

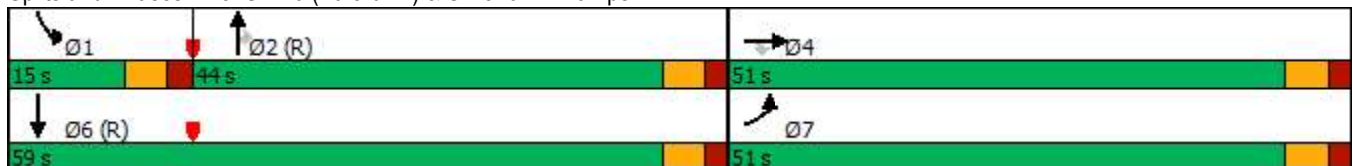


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	382	132	180	1617	43	107	1247
Future Volume (vph)	382	132	180	1617	43	107	1247
Lane Group Flow (vph)	394	136	186	1667	44	110	1286
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		2		1	6
Permitted Phases			4		2		
Detector Phase	7	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	23.5	23.5	15.0	27.5
Total Split (s)	51.0	51.0	51.0	44.0	44.0	15.0	59.0
Total Split (%)	46.4%	46.4%	46.4%	40.0%	40.0%	13.6%	53.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.69	0.23	0.57	0.37	0.04	0.40	0.34
Control Delay	49.6	39.8	30.3	11.9	0.8	67.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	39.8	30.3	11.9	0.8	67.8	6.5
Queue Length 50th (ft)	136	44	69	138	0	43	83
Queue Length 95th (ft)	178	69	136	188	5	74	70
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1420	1463	701	4553	986	309	3734
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.09	0.27	0.37	0.04	0.36	0.34

Intersection Summary





























Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
 8: SR 20 (Buford Dr) & SR 316 EB Ramps

3a. Build 2024 AM - Improved
 09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 						   		 	   	
Traffic Volume (veh/h)	382	132	180	0	0	0	0	1617	43	107	1247	0
Future Volume (veh/h)	382	132	180	0	0	0	0	1617	43	107	1247	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	394	136	0				0	1667	0	110	1286	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	516	531					0	4944		166	3833	0
Arrive On Green	0.15	0.15	0.00				0.00	0.65	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	394	136	0				0	1667	0	110	1286	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	12.0	3.7	0.0				0.0	10.8	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	12.0	3.7	0.0				0.0	10.8	0.0	3.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	516	531					0	4944		166	3833	0
V/C Ratio(X)	0.76	0.26					0.00	0.34		0.66	0.34	0.00
Avail Cap(c_a), veh/h	1429	1470					0	4944		298	3833	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	44.9	41.4	0.0				0.0	8.5	0.0	48.9	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.3	0.0				0.0	0.2	0.0	4.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	1.7	0.0				0.0	3.1	0.0	1.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	41.6	0.0				0.0	8.7	0.0	53.2	0.2	0.0
LnGrp LOS	D	D					A	A		D	A	A
Approach Vol, veh/h		530						1667			1396	
Approach Delay, s/veh		45.9						8.7			4.4	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	10.8	77.3		21.9				88.1				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	9.5	38.5		45.5				53.5				
Max Q Clear Time (g_c+I1), s	5.4	12.8		14.0				2.0				
Green Ext Time (p_c), s	0.1	20.1		2.4				23.8				
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

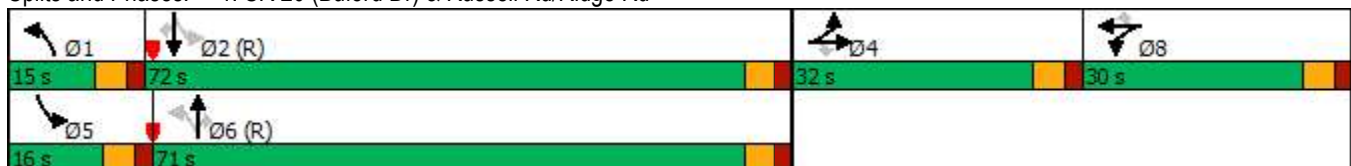
Timings
1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	285	68	141	121	69	64	1270	134	135	1360	142
Future Volume (vph)	201	285	68	141	121	69	64	1270	134	135	1360	142
Lane Group Flow (vph)	221	313	75	155	133	76	70	1396	147	148	1495	156
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	4	4	4	8	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	15.0	30.5	30.5	15.0	34.5	34.5
Total Split (s)	32.0	32.0	32.0	30.0	30.0	30.0	15.0	71.0	71.0	16.0	72.0	72.0
Total Split (%)	21.5%	21.5%	21.5%	20.1%	20.1%	20.1%	10.1%	47.7%	47.7%	10.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
v/c Ratio	0.71	0.95	0.21	0.72	0.58	0.27	0.48	0.83	0.18	0.76	0.83	0.18
Control Delay	71.3	99.3	5.6	80.5	71.4	6.8	29.5	40.6	9.4	56.5	37.0	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	99.3	5.6	80.5	71.4	6.8	29.5	40.6	9.4	56.5	37.0	5.3
Queue Length 50th (ft)	204	304	0	147	124	0	28	634	26	86	655	9
Queue Length 95th (ft)	301	#492	26	218	188	27	69	762	71	#226	#895	53
Internal Link Dist (ft)		601			820			1510			563	
Turn Bay Length (ft)	330		335	210		170	290		75	265		375
Base Capacity (vph)	314	331	362	291	306	343	165	1673	800	197	1807	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.95	0.21	0.53	0.43	0.22	0.42	0.83	0.18	0.75	0.83	0.18

Intersection Summary

Cycle Length: 149
 Actuated Cycle Length: 149
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd



HCM 6th Signalized Intersection Summary
 1: SR 20 (Buford Dr) & Russell Rd/Ridge Rd

3b. Build 2024 PM - Improved
 09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	285	68	141	121	69	64	1270	134	135	1360	142
Future Volume (veh/h)	201	285	68	141	121	69	64	1270	134	135	1360	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	221	313	75	155	133	76	70	1396	147	148	1495	156
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	3	2
Cap, veh/h	317	333	282	187	197	167	164	1835	819	211	1895	852
Arrive On Green	0.18	0.18	0.18	0.11	0.11	0.11	0.03	0.52	0.52	0.05	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3526	1585
Grp Volume(v), veh/h	221	313	75	155	133	76	70	1396	147	148	1495	156
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1763	1585
Q Serve(g_s), s	17.4	24.6	6.1	12.7	10.2	6.7	2.8	46.6	7.4	5.8	50.7	7.5
Cycle Q Clear(g_c), s	17.4	24.6	6.1	12.7	10.2	6.7	2.8	46.6	7.4	5.8	50.7	7.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	333	282	187	197	167	164	1835	819	211	1895	852
V/C Ratio(X)	0.70	0.94	0.27	0.83	0.68	0.46	0.43	0.76	0.18	0.70	0.79	0.18
Avail Cap(c_a), veh/h	317	333	282	293	308	261	222	1835	819	242	1895	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	60.5	52.9	65.3	64.2	62.7	25.7	28.7	19.2	27.9	27.7	17.7
Incr Delay (d2), s/veh	6.6	34.2	0.5	10.6	4.0	1.9	1.7	3.0	0.5	7.4	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	14.7	2.5	6.3	5.0	2.8	1.2	19.4	2.7	2.9	20.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	94.7	53.4	75.9	68.2	64.6	27.5	31.7	19.7	35.4	31.1	18.1
LnGrp LOS	E	F	D	E	E	E	C	C	B	D	C	B
Approach Vol, veh/h		609			364			1613			1799	
Approach Delay, s/veh		78.5			70.8			30.4			30.3	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	85.6		32.0	13.4	82.4		21.2				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	66.5		26.5	10.5	65.5		24.5				
Max Q Clear Time (g_c+I1), s	4.8	52.7		26.6	7.8	48.6		14.7				
Green Ext Time (p_c), s	0.0	11.6		0.0	0.1	13.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				40.4								
HCM 6th LOS				D								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Int Delay, s/veh	3						
Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↙	↗	↙	↕	↘	↕	↗
Traffic Vol, veh/h	12	167	66	1584	0	1433	29
Future Vol, veh/h	12	167	66	1584	0	1433	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	-	Yield
Storage Length	0	0	290	-	275	-	135
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	94	94	94	94	92	94	94
Heavy Vehicles, %	2	2	2	2	2	3	2
Mvmt Flow	13	178	70	1685	0	1524	31

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	2507	762	1524	0	1685	-	0
Stage 1	1524	-	-	-	-	-	-
Stage 2	983	-	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	6.44	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	23	347	434	-	119	-	-
Stage 1	166	-	-	-	-	-	-
Stage 2	323	-	-	-	-	-	-
Platoon blocked, %				-	-	-	-
Mov Cap-1 Maneuver	19	347	434	-	119	-	-
Mov Cap-2 Maneuver	19	-	-	-	-	-	-
Stage 1	139	-	-	-	-	-	-
Stage 2	323	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.9	0.6	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBU	SBT	SBR
Capacity (veh/h)	434	-	19	347	119	-	-
HCM Lane V/C Ratio	0.162	-	0.672	0.512	-	-	-
HCM Control Delay (s)	14.9	-	\$ 371.1	25.8	0	-	-
HCM Lane LOS	B	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0.6	-	1.8	2.8	0	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Vol, veh/h	40	1	17	8	2	2	26	1606	6	4	1548	48
Future Vol, veh/h	40	1	17	8	2	2	26	1606	6	4	1548	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	280	-	155	260	-	290
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	1	2	2	3	2
Mvmt Flow	43	1	18	9	2	2	28	1709	6	4	1647	51

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2567	3420	824	2597	3420	855	1647	0	0	1709	0	0
Stage 1	1655	1655	-	1765	1765	-	-	-	-	-	-	-
Stage 2	912	1765	-	832	1655	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 13	7	316	12	7	302	389	-	-	368	-	-
Stage 1	102	154	-	87	136	-	-	-	-	-	-	-
Stage 2	295	136	-	330	154	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	6	316	10	6	302	389	-	-	368	-	-
Mov Cap-2 Maneuver	68	64	-	60	60	-	-	-	-	-	-	-
Stage 1	95	152	-	81	126	-	-	-	-	-	-	-
Stage 2	267	126	-	306	152	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	93.3	65.5	0.2	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	389	-	-	68	316	72	368	-	-
HCM Lane V/C Ratio	0.071	-	-	0.641	0.057	0.177	0.012	-	-
HCM Control Delay (s)	15	-	-	124.9	17.1	65.5	14.9	-	-
HCM Lane LOS	B	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.8	0.2	0.6	0	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕	↗	↕	↗	↕
Traffic Vol, veh/h	27	1	61	8	2	4	89	1609	9	4	1548	21
Future Vol, veh/h	27	1	61	8	2	4	89	1609	9	4	1548	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	0	-	-	-	285	-	145	285	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	1	11	2	3	2
Mvmt Flow	28	1	64	8	2	4	94	1694	9	4	1629	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2673	3519	815	2705	3519	847	1629	0	0	1694	0	0
Stage 1	1637	1637	-	1882	1882	-	-	-	-	-	-	-
Stage 2	1036	1882	-	823	1637	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 11	6	321	10	6	305	395	-	-	373	-	-
Stage 1	105	157	-	73	118	-	-	-	-	-	-	-
Stage 2	248	118	-	334	157	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 8	5	321	~ 6	5	305	395	-	-	373	-	-
Mov Cap-2 Maneuver	53	53	-	40	35	-	-	-	-	-	-	-
Stage 1	80	155	-	56	90	-	-	-	-	-	-	-
Stage 2	182	90	-	263	155	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	56.2	99.6	0.9	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	395	-	-	53	321	52	373	-	-
HCM Lane V/C Ratio	0.237	-	-	0.556	0.2	0.283	0.011	-	-
HCM Control Delay (s)	16.9	-	-	137.3	19	99.6	14.8	-	-
HCM Lane LOS	C	-	-	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	0.7	1	0	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

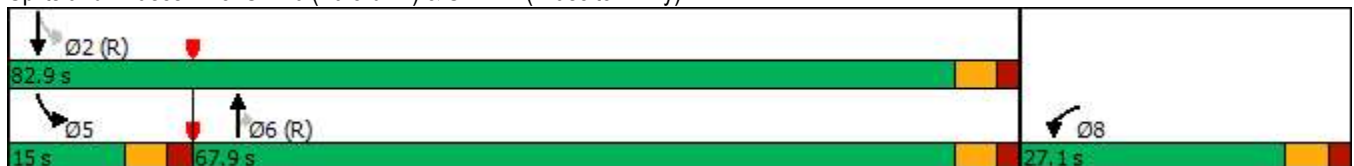
Timings
5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

	↙	↑	↘	↙	↓
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↑↑	↘	↙	↑↑
Traffic Volume (vph)	377	1560	825	92	1530
Future Volume (vph)	377	1560	825	92	1530
Lane Group Flow (vph)	458	1592	842	94	1561
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	6		5	2
Permitted Phases			6	2	
Detector Phase	8	6	6	5	2
Switch Phase					
Minimum Initial (s)	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	23.5	23.5	23.5	15.0	23.5
Total Split (s)	27.1	67.9	67.9	15.0	82.9
Total Split (%)	24.6%	61.7%	61.7%	13.6%	75.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.77	0.71	0.64	0.45	0.61
Control Delay	50.6	3.6	3.0	13.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	3.6	3.0	13.5	8.9
Queue Length 50th (ft)	153	48	0	17	252
Queue Length 95th (ft)	205	57	m70	47	336
Internal Link Dist (ft)	531	904			798
Turn Bay Length (ft)	120		550	105	
Base Capacity (vph)	679	2229	1308	238	2551
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.71	0.64	0.39	0.61

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)



HCM 6th Signalized Intersection Summary
 5: SR 20 (Buford Dr) & SR 124 (Braselton Hwy)

3b. Build 2024 PM - Improved
 09/30/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	YY		↑↑	↑	↑	↑↑
Traffic Volume (veh/h)	377	72	1560	825	92	1530
Future Volume (veh/h)	377	72	1560	825	92	1530
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1811	1856
Adj Flow Rate, veh/h	453	0	1592	0	94	1561
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	6	3
Cap, veh/h	534		2336		343	2644
Arrive On Green	0.15	0.00	1.00	0.00	0.04	0.75
Sat Flow, veh/h	3563	1585	3647	1585	1725	3618
Grp Volume(v), veh/h	453	0	1592	0	94	1561
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1725	1763
Q Serve(g_s), s	13.6	0.0	0.0	0.0	1.8	21.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	0.0	1.8	21.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	534		2336		343	2644
V/C Ratio(X)	0.85		0.68		0.27	0.59
Avail Cap(c_a), veh/h	700		2336		418	2644
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.35	0.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	0.0	0.0	0.0	4.6	6.2
Incr Delay (d2), s/veh	7.6	0.0	0.6	0.0	0.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	0.2	0.0	0.5	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.1	0.0	0.6	0.0	5.1	7.1
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	453		1592			1655
Approach Delay, s/veh	53.1		0.6			7.0
Approach LOS	D		A			A
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		88.0			10.2	77.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		77.4			9.5	62.4
Max Q Clear Time (g_c+I1), s		23.8			3.8	2.0
Green Ext Time (p_c), s		33.6			0.1	37.2

Intersection Summary

HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: SR 20 (Buford Dr) & Swanson Dr

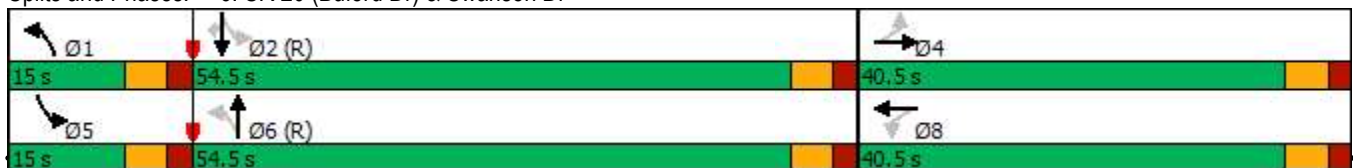


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕		↕	↙	↗	↙	↗	↗
Traffic Volume (vph)	91	14	54	16	79	2559	67	1744	36
Future Volume (vph)	91	14	54	16	79	2559	67	1744	36
Lane Group Flow (vph)	0	199	0	156	84	2848	71	1855	38
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	1	6	5	2	
Permitted Phases	4		8		6		2		2
Detector Phase	4	4	8	8	1	6	5	2	2
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.5	39.5	40.5	40.5	15.0	31.5	15.0	24.5	24.5
Total Split (s)	40.5	40.5	40.5	40.5	15.0	54.5	15.0	54.5	54.5
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.6%	49.5%	13.6%	49.5%	49.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	C-Min
v/c Ratio		0.82		0.58	0.45	0.88	0.40	0.83	0.04
Control Delay		59.6		34.4	25.4	22.0	18.9	18.4	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		59.6		34.4	25.4	22.0	18.9	18.4	0.2
Queue Length 50th (ft)		112		66	16	516	10	486	0
Queue Length 95th (ft)		181		124	70	#886	m35	#894	m0
Internal Link Dist (ft)		386		502		1117		904	
Turn Bay Length (ft)					110		150		150
Base Capacity (vph)		419		456	224	3238	220	2230	1027
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.47		0.34	0.38	0.88	0.32	0.83	0.04

Intersection Summary




















Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: SR 20 (Buford Dr) & Swanson Dr



HCM 6th Signalized Intersection Summary
6: SR 20 (Buford Dr) & Swanson Dr

3b. Build 2024 PM - Improved
09/30/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	14	82	54	16	77	79	2559	118	67	1744	36
Future Volume (veh/h)	91	14	82	54	16	77	79	2559	118	67	1744	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1885	1885	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	15	87	57	17	82	84	2722	126	71	1855	38
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	2	2	2	2
Cap, veh/h	153	28	102	117	47	131	295	3241	148	157	2277	1016
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.64	0.64	0.08	1.00	1.00
Sat Flow, veh/h	621	168	613	431	279	787	1795	5044	230	1781	3554	1585
Grp Volume(v), veh/h	199	0	0	156	0	0	84	1839	1009	71	1855	38
Grp Sat Flow(s),veh/h/ln	1402	0	0	1496	0	0	1795	1716	1844	1781	1777	1585
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	1.7	45.4	47.5	1.5	0.0	0.0
Cycle Q Clear(g_c), s	15.3	0.0	0.0	10.4	0.0	0.0	1.7	45.4	47.5	1.5	0.0	0.0
Prop In Lane	0.49		0.44	0.37		0.53	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	0	295	0	0	295	2205	1185	157	2277	1016
V/C Ratio(X)	0.70	0.00	0.00	0.53	0.00	0.00	0.28	0.83	0.85	0.45	0.81	0.04
Avail Cap(c_a), veh/h	501	0	0	519	0	0	375	2205	1185	239	2277	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	44.5	0.0	0.0	42.3	0.0	0.0	5.8	15.1	15.5	24.0	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	1.5	0.0	0.0	0.5	3.9	7.8	1.5	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	4.0	0.0	0.0	0.6	15.8	19.0	1.2	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	0.0	0.0	43.8	0.0	0.0	6.3	19.1	23.3	25.5	2.4	0.0
LnGrp LOS	D	A	A	D	A	A	A	B	C	C	A	A
Approach Vol, veh/h		199			156			2932			1964	
Approach Delay, s/veh		47.7			43.8			20.2			3.2	
Approach LOS		D			D			C			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	76.0		23.9	9.9	76.2		23.9				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	49.0		35.0	9.5	49.0		35.0				
Max Q Clear Time (g_c+I1), s	3.7	2.0		17.3	3.5	49.5		12.4				
Green Ext Time (p_c), s	0.1	37.5		1.1	0.1	0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				15.6								
HCM 6th LOS				B								

Timings
7: SR 20 (Buford Dr) & SR 316 WB Ramps

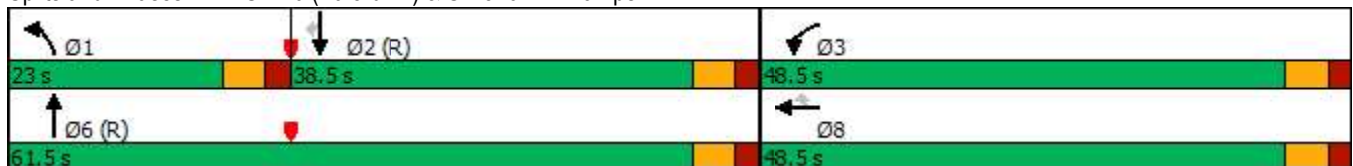


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑↑	↑↑↑↑	↖
Traffic Volume (vph)	102	77	134	345	1769	1335	527
Future Volume (vph)	102	77	134	345	1769	1335	527
Lane Group Flow (vph)	105	79	138	356	1824	1376	543
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	3	8		1	6	2	
Permitted Phases			8				2
Detector Phase	3	8	8	1	6	2	2
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	5.0	15.0	15.0	15.0
Minimum Split (s)	15.0	48.5	48.5	15.0	27.5	23.5	23.5
Total Split (s)	48.5	48.5	48.5	23.0	61.5	38.5	38.5
Total Split (%)	44.1%	44.1%	44.1%	20.9%	55.9%	35.0%	35.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
v/c Ratio	0.32	0.24	0.62	0.69	0.45	0.30	0.46
Control Delay	47.9	46.3	33.9	44.0	3.7	21.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	47.9	46.3	33.9	44.0	3.8	21.7	11.6
Queue Length 50th (ft)	36	27	40	112	89	179	123
Queue Length 95th (ft)	60	49	99	162	163	273	m271
Internal Link Dist (ft)		790			455	461	
Turn Bay Length (ft)	485		300				325
Base Capacity (vph)	1341	1383	666	572	4092	4559	1171
Starvation Cap Reductn	0	0	0	0	654	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.06	0.21	0.62	0.53	0.30	0.46

Intersection Summary

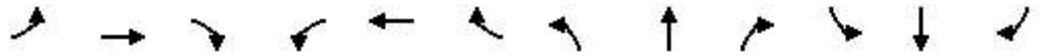
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: SR 20 (Buford Dr) & SR 316 WB Ramps



HCM 6th Signalized Intersection Summary
 7: SR 20 (Buford Dr) & SR 316 WB Ramps

3b. Build 2024 PM - Improved
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔	↑↑	↗	↔↔	↑↑↑			↑↑↑↑	↗
Traffic Volume (veh/h)	0	0	0	102	77	134	345	1769	0	0	1335	527
Future Volume (veh/h)	0	0	0	102	77	134	345	1769	0	0	1335	527
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	79	0	356	1824	0	0	1376	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				192	197		419	4312	0	0	5099	
Arrive On Green				0.06	0.06	0.00	0.24	1.00	0.00	0.00	0.67	0.00
Sat Flow, veh/h				3456	3554	1585	3456	5274	0	0	7930	1585
Grp Volume(v), veh/h				105	79	0	356	1824	0	0	1376	0
Grp Sat Flow(s),veh/h/ln				1728	1777	1585	1728	1702	0	0	1515	1585
Q Serve(g_s), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	8.0	0.0
Cycle Q Clear(g_c), s				3.3	2.4	0.0	10.8	0.0	0.0	0.0	8.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				192	197		419	4312	0	0	5099	
V/C Ratio(X)				0.55	0.40		0.85	0.42	0.00	0.00	0.27	
Avail Cap(c_a), veh/h				1351	1389		550	4312	0	0	5099	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.81	0.81	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				50.6	50.2	0.0	40.7	0.0	0.0	0.0	7.2	0.0
Incr Delay (d2), s/veh				2.4	1.3	0.0	7.8	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	1.1	0.0	4.4	0.1	0.0	0.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.0	51.5	0.0	48.5	0.2	0.0	0.0	7.3	0.0
LnGrp LOS				D	D		D	A	A	A	A	
Approach Vol, veh/h					184			2180			1376	
Approach Delay, s/veh					52.4			8.1			7.3	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.8	79.6				98.4		11.6				
Change Period (Y+Rc), s	5.5	5.5				5.5		5.5				
Max Green Setting (Gmax), s	17.5	33.0				56.0		43.0				
Max Q Clear Time (g_c+I1), s	12.8	10.0				2.0		5.3				
Green Ext Time (p_c), s	0.5	15.8				38.3		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		10.0
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
8: SR 20 (Buford Dr) & SR 316 EB Ramps

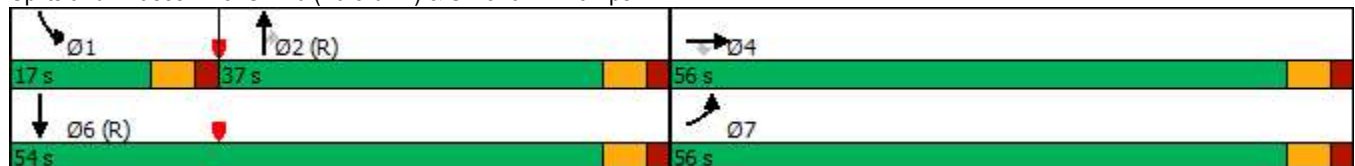


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↑↑	↗	↑↑↑↑	↗	↖↗	↑↑↑
Traffic Volume (vph)	920	780	338	1156	16	119	1320
Future Volume (vph)	920	780	338	1156	16	119	1320
Lane Group Flow (vph)	939	796	345	1180	16	121	1347
Turn Type	Prot	NA	Perm	NA	Perm	Prot	NA
Protected Phases	7	4		2		1	6
Permitted Phases			4		2		
Detector Phase	7	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	6.0	6.0	15.0	15.0	5.0	15.0
Minimum Split (s)	15.0	49.5	49.5	23.5	23.5	15.0	27.5
Total Split (s)	56.0	56.0	56.0	37.0	37.0	17.0	54.0
Total Split (%)	50.9%	50.9%	50.9%	33.6%	33.6%	15.5%	49.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
v/c Ratio	0.80	0.66	0.58	0.37	0.02	0.42	0.48
Control Delay	37.9	32.9	25.8	23.2	0.1	66.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	32.9	25.8	23.2	0.1	66.2	10.7
Queue Length 50th (ft)	307	249	153	137	0	35	331
Queue Length 95th (ft)	342	281	220	190	0	64	81
Internal Link Dist (ft)		664		520			455
Turn Bay Length (ft)	255		285				
Base Capacity (vph)	1576	1624	769	3194	715	359	2833
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.49	0.45	0.37	0.02	0.34	0.48

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 8: SR 20 (Buford Dr) & SR 316 EB Ramps



HCM 6th Signalized Intersection Summary
8: SR 20 (Buford Dr) & SR 316 EB Ramps

3b. Build 2024 PM - Improved
09/30/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	920	780	338	0	0	0	0	1156	16	119	1320	0
Future Volume (veh/h)	920	780	338	0	0	0	0	1156	16	119	1320	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	939	796	0				0	1180	0	121	1347	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1220	1254					0	3372		179	2793	0
Arrive On Green	0.35	0.35	0.00				0.00	0.45	0.00	0.10	1.00	0.00
Sat Flow, veh/h	3456	3554	1585				0	7930	1585	3456	5274	0
Grp Volume(v), veh/h	939	796	0				0	1180	0	121	1347	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585				0	1515	1585	1728	1702	0
Q Serve(g_s), s	26.6	20.5	0.0				0.0	11.3	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	26.6	20.5	0.0				0.0	11.3	0.0	3.7	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1220	1254					0	3372		179	2793	0
V/C Ratio(X)	0.77	0.63					0.00	0.35		0.67	0.48	0.00
Avail Cap(c_a), veh/h	1586	1631					0	3372		361	2793	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	0.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	31.6	29.7	0.0				0.0	20.1	0.0	48.4	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.5	0.0				0.0	0.3	0.0	4.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	8.7	0.0				0.0	3.8	0.0	1.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	30.2	0.0				0.0	20.3	0.0	52.6	0.6	0.0
LnGrp LOS	C	C					A	C		D	A	A
Approach Vol, veh/h		1735						1180			1468	
Approach Delay, s/veh		31.9						20.3			4.9	
Approach LOS		C						C			A	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	11.2	54.5		44.3				65.7				
Change Period (Y+Rc), s	5.5	5.5		5.5				5.5				
Max Green Setting (Gmax), s	11.5	31.5		50.5				48.5				
Max Q Clear Time (g_c+I1), s	5.7	13.3		28.6				2.0				
Green Ext Time (p_c), s	0.1	11.7		10.3				24.1				
Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

Traffic Volume Worksheets

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
 September 2022

1. SR 20 @ Ridge-Russell Rd

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Russell Road Eastbound				Ridge Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	51	986	48	1085	78	1197	195	1470	204	79	42	325	122	171	61	354
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	53	1020	50	1123	81	1238	202	1521	211	82	43	336	126	177	63	366
Total New Trips:	4	24	10	38	0	8	0	8	0	0	1	1	3	0	0	3
Future 2024 Traffic Volumes:	57	1044	60	1161	81	1246	202	1529	211	82	44	337	129	177	63	369

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Russell Road Eastbound				Ridge Road Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	58	1206	120	1384	131	1282	137	1550	194	276	61	531	123	117	67	307
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	60	1247	124	1431	135	1326	142	1603	201	285	63	549	127	121	69	317
Total New Trips:	4	23	10	37	0	34	0	34	0	0	5	5	14	0	0	14
Future 2024 Traffic Volumes:	64	1270	134	1468	135	1360	142	1637	201	285	68	554	141	121	69	331

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
 September 2022

2. SR 20 @ Calvin Davis Cir

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Calvin Davis Circle Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	94	1310	0	1404	0	1297	39	1336	22	0	128	150	0	0	0	0
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	97	1355	0	1452	0	1341	40	1381	23	0	132	155	0	0	0	0
Total New Trips:	11	38	0	49	0	13	0	13	0	0	4	4	0	0	0	0
Future 2024 Traffic Volumes:	108	1393	0	1501	0	1354	40	1394	23	0	136	159	0	0	0	0

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Calvin Davis Circle Eastbound				- Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	53	1496	0	1549	0	1335	28	1363	12	0	146	158	0	0	0	0
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	55	1547	0	1602	0	1380	29	1409	12	0	151	163	0	0	0	0
Total New Trips:	11	37	0	48	0	53	0	53	0	0	16	16	0	0	0	0
Future 2024 Traffic Volumes:	66	1584	0	1650	0	1433	29	1462	12	0	167	179	0	0	0	0

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
 September 2022

3. SR 20 @ Wildcat Dr

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Site Driveway 2 Eastbound				Wildcat Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	4	1399	1	1404	6	1415	4	1425	1	0	2	3	4	0	4	8
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	4	1447	1	1452	6	1463	4	1473	1	0	2	3	4	0	4	8
Total New Trips:	5	15	0	20	0	5	12	17	34	1	15	50	0	0	0	0
Future 2024 Traffic Volumes:	9	1462	1	1472	6	1468	16	1490	35	1	17	53	4	0	4	8

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Site Driveway 2 Eastbound				Wildcat Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	5	1540	6	1551	4	1477	0	1481	7	0	3	10	8	0	2	10
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	5	1592	6	1603	4	1527	0	1531	7	0	3	10	8	0	2	10
Total New Trips:	21	14	0	35	0	21	48	69	33	1	14	48	0	2	0	2
Future 2024 Traffic Volumes:	26	1606	6	1638	4	1548	48	1600	40	1	17	58	8	2	2	12

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
 September 2022

4. SR 20 @ Coronada Trl

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Site Driveway 1 Eastbound				Coronada Trail Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	10	1387	1	1398	7	1407	9	1423	1	0	2	3	6	0	3	9
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	10	1434	1	1445	7	1455	9	1471	1	0	2	3	6	0	3	9
Total New Trips:	20	5	0	25	0	15	5	20	15	1	59	75	0	0	0	0
Future 2024 Traffic Volumes:	30	1439	1	1470	7	1470	14	1491	16	1	61	78	6	0	3	9

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Site Driveway 1 Eastbound				Coronada Trail Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	5	1536	9	1550	4	1484	0	1488	13	0	3	16	8	0	4	12
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	5	1588	9	1602	4	1534	0	1538	13	0	3	16	8	0	4	12
Total New Trips:	84	21	0	105	0	14	21	35	14	1	58	73	0	2	0	2
Future 2024 Traffic Volumes:	89	1609	9	1707	4	1548	21	1573	27	1	61	89	8	2	4	14

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
September 2022

5. SR 20 @ SR 124

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				- Eastbound				SR 124 (Braselton Highway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	0	1322	361	1683	59	1469	0	1528	0	0	0	0	798	1	35	834
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	0	1367	373	1740	61	1519	0	1580	0	0	0	0	825	1	36	862
Total New Trips:	0	19	0	19	19	55	0	74	0	0	0	0	0	0	6	6
Future 2024 Traffic Volumes:	0	1386	373	1759	80	1574	0	1654	0	0	0	0	825	1	42	868

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				- Eastbound				SR 124 (Braselton Highway) Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	0	1433	798	2231	72	1427	0	1499	0	0	0	0	365	0	44	409
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	0	1482	825	2307	74	1476	0	1550	0	0	0	0	377	0	45	422
Total New Trips:	0	78	0	78	18	54	0	72	0	0	0	0	0	0	27	27
Future 2024 Traffic Volumes:	0	1560	825	2385	92	1530	0	1622	0	0	0	0	377	0	72	449

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
September 2022

6. SR 20 @ Swanson Dr

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Swanson Drive Eastbound				Swanson Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	118	1672	65	1855	46	1762	65	1873	62	26	89	177	87	49	50	186
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	122	1729	67	1918	48	1822	67	1937	64	27	92	183	90	51	52	193
Total New Trips:	0	16	0	16	6	47	3	56	1	0	0	1	0	0	2	2
Future 2024 Traffic Volumes:	122	1745	67	1934	54	1869	70	1993	65	27	92	184	90	51	54	195

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				Swanson Drive Eastbound				Swanson Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	76	2412	114	2602	59	1643	33	1735	84	14	79	177	52	15	66	133
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	79	2494	118	2691	61	1699	34	1794	87	14	82	183	54	16	68	138
Total New Trips:	0	65	0	65	6	45	2	53	4	0	0	4	0	0	9	9
Future 2024 Traffic Volumes:	79	2559	118	2756	67	1744	36	1847	91	14	82	187	54	16	77	147

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
September 2022

7. SR 20 @ SR 316 WB Ramps

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				SR 316 WB Ramps Eastbound				SR 316 WB Ramps Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	291	1634	0	1925	0	1180	923	2103	0	0	0	0	107	108	99	314
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	301	1690	0	1991	0	1220	954	2174	0	0	0	0	111	112	102	325
Total New Trips:	0	10	0	10	0	23	19	42	0	0	0	0	0	0	4	4
Future 2024 Traffic Volumes:	301	1700	0	2001	0	1243	973	2216	0	0	0	0	111	112	106	329

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				SR 316 WB Ramps Eastbound				SR 316 WB Ramps Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	334	1671	0	2005	0	1270	492	1762	0	0	0	0	99	74	112	285
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	345	1728	0	2073	0	1313	509	1822	0	0	0	0	102	77	116	295
Total New Trips:	0	41	0	41	0	22	18	40	0	0	0	0	0	0	18	18
Future 2024 Traffic Volumes:	345	1769	0	2114	0	1335	527	1862	0	0	0	0	102	77	134	313

22-169 Buford Drive Mixed-Use Dev - Lawrenceville, GA
Traffic Volumes

A&R Engineering
September 2022

8. SR 20 @ SR 316 EB Ramps

A.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				SR 316 EB Ramps Eastbound				SR 316 EB Ramps Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	0	1561	42	1603	91	1196	0	1287	364	128	174	666	0	0	0	0
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	0	1614	43	1657	94	1237	0	1331	376	132	180	688	0	0	0	0
Total New Trips:	0	3	0	3	13	10	0	23	6	0	0	6	0	0	0	0
Future 2024 Traffic Volumes:	0	1617	43	1660	107	1247	0	1354	382	132	180	694	0	0	0	0

P.M. Peak Hour

Condition	SR 20 (Buford Drive) Northbound				SR 20 (Buford Drive) Southbound				SR 316 EB Ramps Eastbound				SR 316 EB Ramps Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2022 Traffic Counts:	0	1104	15	1119	103	1267	0	1370	864	754	327	1945	0	0	0	0
Growth Factor (%):	1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7		1.7	1.7	1.7	
No-Build 2024 Volumes:	0	1142	16	1158	107	1310	0	1417	893	780	338	2011	0	0	0	0
Total New Trips:	0	14	0	14	12	10	0	22	27	0	0	27	0	0	0	0
Future 2024 Traffic Volumes:	0	1156	16	1172	119	1320	0	1439	920	780	338	2038	0	0	0	0